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ABSTRACT

A survey of school-based vocationally oriented education in the Commonwealth of Nations was based on a series of reports from 42 countries at the primary and secondary level on policy formation, vocational offerings, skills training, and vocational initiatives. Two broad vocational program objectives predominate: trainability and employability. Countries organize their curricula based on their educational objectives and strength of commitment to diversification, the educational level, and the resources available. Vocational programs should introduce vocational education to all students, particularly women. Post-school programs, such as apprenticeships, play an important role. A range of authorities and agencies initiate and maintain education and training at a national level. Smaller countries are creating a viable infrastructure for programs, whereas others are concentrating on initiative and innovation. Commonwealth countries have encountered problems in introducing vocational programs in schools. Curriculum development initiatives lead schools to a broader diversified curriculum incorporating some practical elements. The shortage of trained teachers impedes rapid vocationalization. The cost of implementing vocational training opportunities is high. Programs are intended to facilitate transition from school to work. (This report incorporates excerpts from individual countries.) (NLA)

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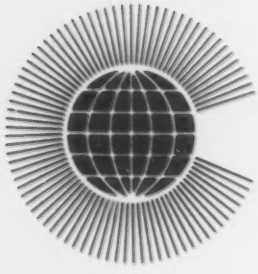

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# SURVEY OF VOCATIONALLY-ORIENTED EDUCATION IN THE COMMONWEALTH

Prepared for the Commonwealth Secretariat by

Carol Coombe

London
June 1988

COMMONWEALTH SECRETARIAT

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# A SURVEY OF VOCATIONALLY-ORIENTED EDUCATION IN THE COMMONWEALTH

## PREFACE

This survey of vocationally-oriented education in the Commonwealth is based on a series of country reports prepared at the request of the Commonwealth Secretariat as part of the preparation for the Tenth Conference of Commonwealth Education Ministers, Nairobi, Kenya, 20-24 July 1987.

Forty-two country papers* form the basis for this Commonwealth-wide overview of school-based vocational programmes. The range of papers very adequately reflects Commonwealth experience.

Countries were asked to concentrate on aspects of policy formulation and programme implementation. They were asked to take a broad view of the subject matter and to include reference to nonformal and out-of-school provision, but to avoid concentration on the organisation, content and methods of highly specialised occupational training either in industry or in institutions. The emphasis in this paper is on school-based vocational education at the primary and secondary level, although consideration of training opportunities at the tertiary level and in other post-school systems is not ignored.

The country papers, and this analysis, have sought to comment on policy formation, patterns of vocational provision, programmes for implementating skills training, and promising initiatives for overcoming constraints on expanding and improving provision throughout the Commonwealth.

This survey has attempted to capture the flavour of the country reports by incorporating excerpts from them (see Boxes). It should however be read in conjunction with the country papers themselves which have been published by the Commonwealth Secretariat (May-June 1987).

The Commonwealth Secretariat is very grateful to Carol Coombe for preparing this report.

London
June 1988

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* Antigua and Barbuda, Australia, Bahamas, Bangladesh, Barbados, Bermuda, Botswana, Britain, Brunei Darussalam, Canada, Cyprus, Dominica, Fiji, The Gambia, Ghana, Grenada, Guyana, India, Jamaica, Kenya, Kiribati, Lesotho, Malawi, Malaysia, Maldives, Malta, Mauritius, New Zealand, Nigeria, Papua New Guinea, St Kitts and Nevis, Seychelles, Sierra Leone, Solomon Islands, Sri Lanka, Swaziland, Tanzania, Tonga, Trinidad and Tobago, Uganda, Zambia and Zimbabwe.

## I VOCATIONAL EDUCATION POLICY

### INTRODUCTION

In the past three decades many forces, including significant demographic trends, very rapid scientific and technological change and economic recession, have contributed to a pronounced disequilibrium between education systems and the world of work. Ministries of Education worldwide have struggled to meet the demands imposed on them by soaring numbers of learners of all ages and abilities, with heightened expectations of the education system, at a time when financial and material resources for education could not keep pace with demand.

Many countries have nevertheless achieved remarkably high levels of education provision at primary and secondary levels. Transition rates between levels and retention rates within school cycles have improved. In some countries worst hit by recession, the underpinnings of educational expansion have been shaky - substandard and poorly maintained buildings, inadequate or inappropriate equipment and learning materials including textbooks, and poorly trained and sometimes poorly motivated teachers. An apparent decline in the general quality of mass basic education has been a matter of international concern. This should not detract however from what has been achieved: a broad-based mass education programme at primary and junior secondary levels is in place in most Commonwealth countries.

Growth and diversification at the tertiary level have also been impressive, but in most Commonwealth countries post-secondary education is still highly selective. High per capita costs, both capital and recurrent, and anxiety about the production of surplus high-level manpower have tended to depress investment in further and higher education from both national and external sources.

As basic education programmes expanded and were obviously terminal for the bulk of school-age children, secondary school curricula in many countries have become less vulnerable to domination by university entrance requirements. Schools have been able to concentrate more on the knowledge and skills required for adult life in the world of work, the immediate destiny of the bulk of school leavers.

The economic recessions of the 1970s and 1980s which severely depressed job markets and squeezed public expenditure on education, have exerted tremendous pressures on governments, especially Education Ministries, to justify the value of educational expenditure in terms of its social utility and economic return. In its country paper, Britain reflected a common concern of Commonwealth countries to 'obtain maximum value for money out of the significant sums of public money invested in education'. These pressures have accelerated the movement toward a re-definition of school objectives and encouraged the diversification of curricula and modes of assessment, with the accent on 'relevant' knowledge, resourcefulness, work-related skills and competence.

BOX 1

Children and young people must acquire the basic knowledge, skills and attitudes to enable them to go on learning and to equip them for living, not only in today's world, but that of the future. This includes respect for self and others and the ability to work in harmony with all people. Teaching 'life skills' for everyday living, including parenting, home-making, budgeting, safety and survival skills, along with physical and aesthetic pursuits are seen as part of the essential programme for all. Health and physical education have an essential place in this curriculum and all learning and teaching must be directed to developing young people who are strong in self-esteem, assertive, not aggressive, and considerate of others. It is assumed that only against this background can the teaching of strictly vocational skills be developed.

NEW ZEALAND

## EDUCATION POLICY GOALS AND THE ROLE OF VOCATIONAL PROGRAMMES

The country papers indicate that 'relevance' has become the common international theme of education policy in this decade: generally 'how to make education practical and relevant', and 'linking education and the world of work'; or, more specifically, 'how to make education relevant and functional to national development needs by linking education and training processes more effectively' (Malaysia). At the same time, certain social and pedagogic priorities command allegiance in the face of overwhelming economic imperatives. Commonwealth countries were asked to outline 'current Government policy about vocationally-oriented education' and in response their country papers highlighted three different kinds of policy objectives: personal, social and economic.

Many Commonwealth countries are committed to a combination of policy goals for vocationally-oriented education. Most would agree with Tonga, which strives equally for the development of the potential and talents of each citizen, the enhancement of the spirit of creativity, entrepreneurship and sense of responsibility, and supplying the country's manpower needs in order to achieve continuous national development and growth.

### Personal Goals

The achievement of strictly personal policy goals is mentioned in several reports: the continuous development of the whole person for adult life (as a useful citizen) in the community (Malawi, Canada, Solomon Islands, New Zealand, see Box 1) fulfilling physical, mental and social needs of individual children while inculcating desired ethical values and fostering spiritual and moral development (Malaysia); and meeting the needs of a wide variety of learners (Zimbabwe, Malawi). In pedagogical terms, as Zambia stresses, practical skills are to be considered as an integral part of a sound basic education curriculum.

### Social Goals

Social policy goals for vocationally-oriented education appear more frequently in the reports, expressed in two ways:

(1) **Providing equality of education opportunity for learners of different talents and abilities, potential and motivation.**

Zimbabwe and Trinidad and Tobago aim to meet the needs of a variety of learners by relating curriculum content to the capacity and needs of a range of pupils. Malta and India hope to promote equal access of all learners to the fruits of development by providing alternatives for those not academically inclined. Malaysia and Britain seek to democratise education and to develop the talents and aptitudes of all children.

Education systems are expected to promote equality of opportunity and provision -- particularly where, as in Botswana and Zimbabwe, there has been a recent massive expansion of entrants of all abilities to the system -- by strengthening and broadening the practical component of the curriculum, either through craft training programmes or productive work schemes.

BOX 2

Access to further training and modern sector employment is based on academic results so students who are 'academically able' tend to stay within the formal sector. However, the numbers of primary and junior secondary 'graduates' are increasing each year and the training and employment opportunities are static. As competition increases, the quality of entrants to vocational education is gradually increasing. For example, entrants to Vocational Centres now often have two or three years of secondary schooling, unheard of a few years ago, and entrants to Technical Colleges have achieved good grades in their Grade 10 examination.

PAPUA NEW GUINEA

BOX 3

Soon after its independence in 1963, Kenya realised an upsurge in the demand for formal education. This was followed by aspirations among political leaders, the government, employers and parents - all looking forward to the employment of youth, national unity and general economic growth. During the 1970's these aspirations were also to be translated in terms of national budgets that were also to be squeezed from meagre national incomes. Today, in the 1980's, things have turned around: unstable economy due to recession, inflation and unemployment seem to be the order of the day.

A new approach to education systems, especially in the developing countries, has been called for - mainly by the policy makers, educators, planners and parents alike. As a result, we continue to see seminars, conferences, workshops, research and classroom lectures being conducted worldwide to help devise education systems that will encounter the problems.

Vocationally-oriented education is the 'new' approach. It is believed that this approach will help answer the problems of unemployability of the youth and contribute substantially to the growth of our ailing economies. There is today a state of euphoria over vocationalising of education in many of the African countries, let alone Kenya, and perhaps a period of orthodoxy has been reached.

KENYA

(2) **Reducing cultural and social inequalities by infusing the curriculum with components which encourage positive attitudes to manual work.**

Bangladesh is trying to remedy a dislike for manual work; Swaziland promotes respect for manual labour.

Tanzania strives to develop positive attitudes both to manual work and to those who carry it out. Practical, productive work experience, beginning at the primary level, is intended to reduce the distinction between practical and theoretical knowledge and the status gap between manual and non-manual work.

It has been argued that having different education and training tracks within the same school may curtail further education and training prospects for those in the vocational track, unless practical subjects are offered as an adjunct to the academic curriculum (as currently in Zimbabwe and Zambia). Some analysts argue that vocational components in a general education programme become thus a second-class alternative which merely serves to 'cool out' academic ambition. Vocational programmes have certainly been seen in this light by many parents and many countries are trying to change such attitudes. Malaysia and Cyprus, for example, have attempted to overcome this 'status' problem by improving further education opportunities and upward mobility for good vocational students. However, it is probably true to say that in most Commonwealth countries, in a period of rising unemployment, the question of 'status' has been overtaken by the real need to give vocational preparation to students who are not able or not motivated to continue in the academic programme and who will find it difficult to get jobs (see Box 2, Papua New Guinea).

**Economic Goals**

By far the most common policy theme for vocationally-oriented education revolves around a number of economic goals, a few of which may involve short-term numerical targets, while most involve complex, long-range social and economic adjustment (see Box 3, Kenya):

(1) producing skilled and semi-skilled professionals/manpower (Lesotho, St Kitts and Nevis, Solomon Islands, Malaysia, Trinidad and Tobago, Zimbabwe); making the country self-sufficient in skilled manpower (Tanzania, Botswana, Barbados); replacing skilled expatriate manpower (Jamaica, Sierra Leone)

(2) reducing education wastage due to the mismatch between the demand and supply of manpower (India, Malaysia, St Kitts and Nevis)

(3) instilling attitudes and values appropriate to economic and social development (Malawi, Swaziland); orienting and motivating students towards work (Bangladesh); remedying a dislike for manual skills (Bangladesh)

(4) preparing self-reliant workers (Lesotho, Tanzania); promoting employment generation (Botswana); enabling school leavers to be self-employed (The Gambia), to earn a living, to enter wage employment (India)

BOX 4

It is a fair statement that Kenya's policy on vocationally-oriented education began at Independence. The Education Commission Report of 1964 emphasised the training of technicians and skilled craftsmen as a sure way to industrial development in Kenya.

Second was the Report of the National Committee on Education Objectives and Policies of 1976. The Report emphasised the need for post-school systems to provide specific skills to occupational activities. It also introduced for the first time the Industrial Levy which would assist the training of more Kenyans. At this time Kenya experienced a proliferation of vocationally-oriented institutions - such as the National Youth Service, the National Industrial Training Centres, Crafts and Trade Training Centres, Village Polytechnics, Harambee Institutes of Technology and others. To reiterate Kenya's commitment to vocational education and training, the committee felt that it was necessary for technical education to be developed in close functional relation with the commercial and industrial development of the country. This it was felt would create facilities to enable newly qualified technologists to establish themselves quickly in rural self-employment.

Finally, Kenya's present policy on vocationally-oriented education is a result of the Presidential Working Party on the Second University of 1981. The report recommended the establishment of Moi University which is technologically oriented. It also recommended the restructuring of the country's education system from seven years of primary education to eight years, six years of secondary education to four years, and three years of university education to a minimum of four years. The new system is now dubbed the 8:4:4 and was launched in 1985.

With its emphasis on technical and vocational education at both primary and secondary levels, the system aims at ensuring that students graduating at every level have some scientific and practical knowledge that can be utilised for either self-employment, salaried employment or for further training. It also aims to reduce the mismatch between demand and supply of skilled manpower and provide for those who would otherwise have wished to pursue further education, and to mould the attitude of youth towards the World of Work.

KENYA

(5) meeting the technological challenges of an increasingly complex industrial environment, rapidly changing technological and scientific processes and procedures (India, Malaysia, Britain)

(6) developing in all citizens a measure of technological literacy (Zimbabwe)

(7) facilitating economic growth and national development (Trinidad and Tobago, The Gambia, Barbados, Maldives, Britain, St Kitts and Nevis); breaking the bottleneck of underdevelopment and underemployment (St Kitts and Nevis).

The widespread belief among Commonwealth countries in the economic advantages to be gained from vocationally-oriented education is reflected in the 'education reform exercises' which many education systems have undertaken during the past decade. In very general terms, such reforms have been characterised by their desire to move the education system

- away from university dominated curricula, from the cultural divide between a white collar elite and the peasant or blue-collar masses, from the identification of grammar school education with respectability and economic security, from the lingering association of vocational subjects with race and caste discrimination

- towards curricula appropriate to life and work, taking full account of the needs of learners for whom primary or secondary schooling is terminal; and towards meeting the challenge of world-wide scientific and cultural change.

The following examples are typical of the reform theme which runs through the country reports (see Box 4, Kenya).

Tanzania. Education for Self-Reliance (1967) made work an integral part of education and attempted to revolutionise the academically-based system. The Musoma Resolution (1974) laid emphasis on scientific and technical education and is reflected in the National Science and Technology Policy of the 1980s and the Ministry of Education's Programme for Science Education and Technical Training.

Zambia. The Education Reform (1976) attempted to overcome the colonial legacy of a bias against practical subjects, in part by incorporating productive work in the school's curriculum.

Malaysia. The Report of the Cabinet Committee on the Implementation of the Education Policy (1979) drew out manpower development issues which were to be broached by expanding and strengthening vocational programmes.

Maldives. The National Workshop (1982) proposed major education reforms including incorporation of 'environmental studies' and 'practical arts' at the primary level.

BOX 5

Australia considers that education at the secondary level should not be specifically vocational nor narrowly academic in nature. Instead, secondary education should provide young people with a sound general education on which further more specific education and training can build. Secondary education can best meet the needs of employers and the vocational needs of young people by imparting a higher order of knowledge and skills which are generally useful and widely applicable and which create the cultural pre-conditions favourable to economic and technological change.

AUSTRALIA

BOX 6

Increasingly, general technical and vocational education is becoming an integral part of general education. Practical subjects ... relate manipulative and mental skills, reinforce learning and show how the learning process may be improved by practical activities .... With the change in methods, materials and techniques taking place in every technical field today, a new kind of skilled worker is needed - one with the ability to apply skills and knowledge under new, changing and varied circumstances. A general technical and vocational education will provide the foundation for eventual specialisation and so help to make future workers more flexible and adaptable.

MALAYSIA

BOX 7

At the secondary level of education, Government's policy is to continue instruction in literacy and numeracy for all. Training in the basic skills required in the crafts is provided for during the first two years of secondary. This vocational training does not purport to be that necessary for entry level skills into a specific occupation. Rather, it should be sufficient to permit a student to decide whether he or she has an aptitude for the occupation under consideration. This policy was adopted to minimise the inefficiency of having a large proportion of students subsequently taking up employment in a field unrelated to their training. It is complemented by a policy of providing, with the assistance of the schools' guidance counsellors, more up-to-date and relevant information to assist students in making choices about careers.

BERMUDA

Swaziland. In 1985, the National Review of the Education System stressed the need to start vocationally oriented education from primary school, and to lay greater emphasis on such programmes in secondary schools.

India. The National Policy on Education (1986) which is committed to bring about socio-economic transformation, laid emphasis on vocational education as a continuous policy thread.

Canada. Almost every province has within the past decade undertaken some form of educational review with vocational education as a major part of the process. Analysis of high school programmes has often led to additional, more detailed reviews of the primary and post-secondary sectors so that 'the cycle of review, development and implementation is on-going at all times'.

The OECD has suggested that 'training [is not] an absolute guarantee against unemployment, and that increasing the number of trained people [will not] reduce aggregate unemployment: the task of reducing unemployment lies primarily with general economic policies. If expectations are raised unduly, there is a risk of disenchantment with vocational education and training'.* Few Commonwealth governments would seriously disagree, but it is clear that many Commonwealth Ministries of Education have accepted or had thrust upon them the role of a multi-purpose economic motivator, producing a more relevant labour-market oriented education which is expected to reduce skilled manpower shortages, promote self-reliance and entrepreneurial capacity for self-employment and community development, and thus reduce unemployment among the young and revitalise national development.

**SPECIFIC VOCATIONAL PROGRAMME OBJECTIVES**

Programme objectives vary according to education level, but two broad objectives are favoured, sometimes alone and sometimes in combination.

(1) **'Trainability' - general education incorporating skills training or pre-vocational preparation aimed at broad versatility, readiness for further training, and appropriate attitudes and values**

These programmes lay emphasis on

(a) good foundation in knowledge and skills developed within a general curriculum (Australia, see Box 5, Britain, New Zealand)

(b) exposure to scientific and technological trends, technological skills and ideas and the transformed technological environment to enable individuals to appreciate and cope with rapid change (Zimbabwe, Trinidad and Tobago, Barbados, Malaysia, see Box 6)

(c) understanding of technical skills and aptitudes, as a basis for further training (Zimbabwe, and Bermuda, Box 7)

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* Organisation for Economic Co-operation and Development, The Future of Vocational Education and Training (Paris: OECD, 1983), p. 11.

BOX 8

The education jurisdictions in Canada take a variety of approaches to ensure that their students are prepared for the adult world through the completion of the school curricula. Some systems reflect the belief that public schools can best prepare the children for the world by ensuring that they each possess a solid grounding in the basic curriculum (language, reading, maths and science) so that as young adults they can apply this knowledge to work or vocational education. Other systems reflect the belief that the early school years can introduce the child to the 'world of work' through increasing exposure to work experience and trade related courses as the child advances through the school system.

CANADA

BOX 9

Secondary technical facilities are expensive to build, equip, maintain and staff compared to schools that focus primarily on the more traditional curriculum. Are the graduates of these schools better equipped to enter productive work upon graduation? Does society recognise technical/vocational secondary school graduates as being in possession of valuable training? Do technical/vocational studies attract the best students? What is the right mix of academic and technical/vocational instruction to optimise the students' chances of gaining productive employment? Is it right to integrate technical/vocational training with academic training? These and other questions are the source of continuing debate in Canada's provinces as they strive to develop educational systems to meet the needs of individuals and the community alike.

CANADA

BOX 10

There is no conclusive evidence that the prevocational subjects alleviate unemployment, re-orient pupils' attitude towards rural society, or transmit skills and attitudes useful in employment. Moreover, contrary to expectations, pupils' performance in the subjects shows that the subjects are not a soft option. Studies on the school leavers' vocational aspirations, employment chances and use of skills they gained in the subjects have not demonstrated a clear inter-relationship between pupils' occupational aspirations and the curriculum (academic or prevoctional) pursued at school. While therefore maintaining the existing provision of vocational orientation of education it is intended to enunciate a more realistic and cautious future programme of expansion in vocational education.

Since vocationally-oriented subjects were introduced, no major curriculum development reforms have been undertaken. The ministry has been pre-occupied with the narrower problem of assessing the level and type of employment school leavers obtain, how long it takes them to obtain employment and which subjects are most useful for this purpose.

MALAWI

(d) appropriate values, attitudes and affective skills such as initiative and drive, creative thinking and problem-solving, and work orientation (St Kitts and Nevis, Trinidad and Tobago, Bangladesh, Britain, New Zealand, Canada).

(2) **'Employability' - through school-based programmes, to groom skilled workers for the labour market**

Tonga (developing specialist skills required for employment), India (training for employability), Bangladesh (a level of skill to enable the leaver to do a specific job), Solomon Islands (basic skills and knowledge for a particular trade), Malaysia (skilled, employable manpower), St Kitts and Nevis (equipping individuals with skills for securing a livelihood), and Trinidad and Tobago (equipping leavers with a variety of marketable skills) all aim, in a variety of ways, to prepare leavers for direct entry to the labour market or even self-employment.

Most systems incorporate one or both of these programme goals depending on the level and specialisation of the programme (see Box 8, Canada). At primary level the aim will often be to orient children towards creative thinking and problem-solving, and simple productive tasks. This often continues through the junior secondary school, though there is usually greater emphasis on specific practical skills at this level. There is a noticeable emphasis on general basic education at the secondary level, lower and upper, aimed at giving flexibility and versatility in the labour market and in further training programmes; but parallel courses for job preparation are also in evidence.

Overall, there is a general tendency throughout the Commonwealth towards school-based skills programmes which are pre-vocational. Many governments do not provide specific job training at school, but graft vocational elements on to an academic curriculum in order to 'familiarise' students with workplace skills and disciplines, improve their 'trainability' and equip them to make 'informed choices' in the job market or further education.

Many countries expect that teaching pre-vocational or vocational skills will somehow alleviate school leaver unemployment. Although the employment/unemployment situation was rarely spelled out in the country papers - apart from occasional mention of 'unemployed or unschooled youth roaming the streets' - it seems clear that this is the prime catalyst that impels governments towards education reform and vocational innovation in schools.

Four questions arising from the country papers deserve specific mention (see also Box 9, Canada):

(1) **What evidence is there that school-based vocational programmes can achieve the general economic goals which some governments have set for them?**

Malawi, uniquely, sounds a note of caution (see Box 10). There was, otherwise, virtually no comment on this critical aspect of vocational programmes.

(2) **Does vocationally-oriented education give any advantage to school leavers when they enter the labour market?**

Any advantage depends on the work-relevance of training and on the balance of supply and demand between jobs and people. It seems that in boom times, school leavers with specialised training find jobs more quickly and at better salaries than academic or pre-vocationally trained leavers. In periods of economic recession and job scarcity employers may tend to pay less attention to academic or vocational preparation and rely more on personal recommendations or submit to patronage pressures.

Zimbabwe notes the paucity of tracer studies which would help to answer this question. But some countries have studies completed or under way. For example, India's National Council of Education Research and Training (NCERT) carried out a survey on 'Post-Secondary Pursuits of Students of Vocational Spectrum Studies' (1979-82). The report emphasised the absence of useful data on the post-school activities of vocational graduates, but among its findings were that the average vocational subject pass rate was 71 per cent; in one state 44 per cent were gainfully employed, at a ratio of 2.5:1 of wage to self-employment; 50 per cent continued to further education.

Malawi is investigating the connection between school curriculum and employment patterns (see Box 10). Botswana is guiding its education system through a period of massive expansion particularly at the junior secondary and senior secondary levels, partly to meet the requirements of its nascent industrial complex. It is negotiating with the World Bank for consultancies on education and employment, and on the cost-effectiveness and relevance of vocational skills training in Botswana. Papua New Guinea reports that its evaluation of the structured vocational preparation given in SSCEP (Secondary Schools Community Extension Project) indicates that it effectively promotes productive self-employment, particularly in self-initiated small businesses in the rural sector. At the same time, academic standards were maintained and even improved at SSCEP schools, even though they provided an education for all, and not just the academically-inclined. SSCEP graduates were placed as often as other graduates in tertiary training institutions.

(3) **Is it realistic to expect that a significant proportion of school leavers will in fact continue to further training?**

Many Commonwealth countries aim to produce 'trainable' products ready for further vocational finishing in post-school formal or nonformal programmes. The reality is that where there is a depressed labour market, access to more specialised training is restricted. That is, so-called pre-vocational preparation may not lead to any related vocational training. (The general absence of statistics on transition rates from level to level in the formal system, and on training vacancies out-of-school in most country papers inhibits this discussion, but it is clear that in most countries coverage is strictly limited by financial and human resource constraints.)

BOX 11

In Victoria until recently the State system of secondary education was divided into academic high schools and vocationally-oriented technical schools. The original purpose of technical schools was to facilitate the entry of students, predominantly male, into apprenticeships. Over the last decade employer preference for generally educated high school students has resulted in the demise of the technical school system. High and technical schools are currently being amalgamated with the aim of preserving the best in both systems.

The new Victorian Certificate of Education will emphasise general education although there will also be opportunities for broad activity-based vocational studies. Vocational specialisation is becoming increasingly a post-school activity.

AUSTRALIA

BOX 12

In the early 70's Junior Technical schools were opened providing technical education at post-primary level. Social pressure, the lack of properly trained staff, shortage of materials and equipment have in part been responsible for the conversion of Junior Technical Schools into Junior Secondary Schools and subsequently into State Secondary Schools.

The achievements in the promotion of vocationally-oriented subjects have to be seen against the development background of the country. Manual as well as technical jobs have not always carried a good pay or a good status. Several attempts to provide vocationally-oriented courses were made with the establishment of senior primary schools, a Technical College, Junior Technical Schools, but with little success. Today all the schools so designed are providing a general education curriculum, some with technical streams.

MAURITIUS

BOX 13

Issues of balance between training and education have arisen because:-

(i) general educationists are prone to question the validity of a clear vocational choice for the first job at age fourteen or fifteen on the part of that small percentage of the age cohort who are ready to make it (estimated about 20% of the age cohort);

(ii) the standard of general education attained by the majority of the age cohort after ten (10) years of general schooling has been found to be appallingly low. (Efforts are under way to alleviate this failing during the current five-year education plan.)

TRINIDAD AND TOBAGO

(4) **Should schools concentrate on a general educational foundation, or on pre-vocational education, or vocational training, or some combination of these?**

This question is perhaps the core of the issue. Examining the state of this debate as reflected in the country reports, it is instructive to consider why some countries have not joined the vocational bandwagon, why others have dropped off it, and why several countries with different levels of commitment to vocationalisation are questioning the assumptions which underlie it.

Several grounds are cited:

(a) **Employers' preference.** In Australia, for example, Victoria has drawn away from technical high schools to general foundation programmes in response to market demand (see Box 11).

(b) **Cost or complexity.** For countries like Fiji, Dominica and Maldives, the cost and complexity of providing vocational programmes has effectively inhibited their evolution.

(c) **Social preference.** Mauritius has experimented with diversification at the secondary level, but encountered strong social resistance and retreated (see Box 12), as did Kiribati, where the Community High School concept was rejected in 1979.

(d) **Age and ability of learners.** In Trinidad and Tobago, specific occupational training begins after completion of seven primary grades and three years of secondary education, when the student is 14 or 15. Reservations about designating career preference at this stage are expressed however, on account of the youthfulness and low level of general education of the cohort (see Box 13).

(e) **Unproven value of school-based vocational programmes.** Malawi is undertaking no further vocational expansion until more is known about the relationship of education, training and employment, and the post-school activities of school leavers. The available information from studies in India points towards inadequacy of the training in terms of proper development of vocational competence.

(f) **Post-school flexibility.** A broader, general education is expected to enhance the employability of leavers in a variety of occupations. The Basseterre High School Project in St Kitts and Nevis, for example, has enrolled good students in a business skills programme which aims to develop well-rounded secretaries with a sound general education who can perform a multiplicity of tasks with initiative and creativity. If they do not get secretarial jobs, the students are expected to have a good chance in the competition for other jobs or training places.

## THE ORGANISATION OF VOCATIONAL PROVISION IN SCHOOLS

The way in which countries organise their curricula depends on a number of factors including the country's educational objectives and strength of commitment to diversification, the educational level, and the resources available. Three broadly-defined patterns of provision in school can be identified within the Commonwealth.

### Patterns of Provision

(1) **Primary and secondary schools remain virtually undiversified and oriented to a general curriculum; substantial skills training is deferred to tertiary institutions and other post-school programmes; schools concentrate on foundation skills**

Mauritius, for example, has attempted to diversify and for social and financial reasons has reverted to a largely general education at primary and secondary level; the Lyceé manages skills training at the tertiary level (see Box 12).

Zimbabwe wishes to diversify at the primary and secondary levels and intends to do so but, so soon after independence and executing a massive secondary education expansion programme, curriculum reform is inhibited by resource constraints.

In the Australian State of Victoria (see Box 11), vocational specialisation is increasingly a post-school activity; schools concentrate on meeting employers' preferences by giving a broad general education. New Zealand adopts this general approach.

(2) **At the other end of the spectrum, radical transformation of the education system has been attempted to meet national social and economic needs**

The Seychelles National Youth Service Programme has replaced traditional secondary schooling and is strongly oriented both to the world of work and the Polytechnic.

Tanzania has concentrated on eliminating adult illiteracy and establishing universal primary education, and has restricted the transition rate from primary to secondary schools to about three per cent (supplemented by private school intake). Tanzania emphasises out-of-school vocational preparation in a national network of post-primary Vocational Training Centres, ministerial and parastatal programmes, community and voluntary training schemes, adult education centres, Folk Development Colleges, the Institute of Adult Education, and evening classes in schools and colleges, and in the work place.

BOX 14

At primary school level the world of work, the respectability of all professions, their responsibilities and contribution towards society, are presented through the text books on the various subjects taught at this level. Organised visits to places of work - factories, farms, fields etc.- help towards better understanding of the world of work.

CYPRUS

BOX 15

Students learn through open dialogue, "doing", "trial" and error", and practice. They are encouraged to apply newly acquired knowledge to problem-solving of an everyday nature. They also acquire the ability to seek out knowledge which helps them deal with problems they encounter. The school environment fosters the development of the necessary level of confidence to support inquiry, imagination and creativity.

SEYCHELLES

BOX 16

At primary level which may lead to the terminal stage of education at the seventh grade, a general formal education curriculum is given a vocational orientation through compulsory vocationally-oriented subjects for all students. The subject area under the "Environmental Studies Package" goes on for five years, while "Practical Arts" continues up to the end of the terminal seventh year, in which for the last two years, a choice of broad based vocational studies are incorporated.

MALDIVES

BOX 17

In the ten SSCEP (Secondary Schools Community Extension Project) schools, attempts were made to provide more structured and specialised vocational training through a series of practically-based projects in Grades 9 and 10. Locally relevant projects with titles such as Market Gardening, Hybrid Cocoa, Coffee Growing, Furniture Making, Mechanics, Tradestore Management, Furnishing and Nutrition were designed to teach students both the academic and practical skills they would need to set up and run such projects in their communities and, in doing so, they allowed students the opportunity to apply their academic knowledge and skills in English, Maths, Science and Social Science in meaningful situations.

PAPUA NEW GUINEA

(3) **Schools offer an intermediate mixture of elements of productive work, work experience, appropriate values and attitudes, and pre-vocational skills training**

(a) **At the primary level**

(i) Productive work. Lesotho, Zambia, India and Zimbabwe for example, have incorporated production projects into the primary curriculum. In India, Work Experience is planned to be universal and compulsory. In Lesotho, Papua New Guinea and Zimbabwe, school gardens contribute to skills development and the school fund (through sale of produce).

(ii) Infusion of elements into the curriculum which promote appropriate attitudes and values. In Cyprus, at the primary level, special provision is made for offering knowledge and understanding of the world of work (see Box 14).

(iii) Infusion of elements into the curriculum which promote analytical skills. In Seychelles, the pedagogy which is advocated from the Crêche to Primary 9 level engages students in a process of discovery (see Box 15).

(iv) Incorporation of pre-vocational skills of hand and eye. Despite the difficulty of doing so, a number of countries attempt to provide some form of initiation into pre-vocational skills at the primary level, Zambia, Lesotho, Zimbabwe, Malawi and Maldives (see Box 16), among them. Pre-vocational subjects at this level are typically confined to agriculture, domestic science, arts and crafts.

(b) **At the secondary level**

(i) Infusion of curricular elements which promote attitudes, values and skills appropriate to the workplace (see Box 17, Papua New Guinea). In South Australia, 'the general formal education curriculum is given a vocational orientation through (inter alia) . . . deliberate infusion of substantial pre-vocational or vocational bias in the whole of the traditional content, including maths and science, through an activity and project approach to traditional subjects'. In New Zealand vocationally desirable skills are developed through a wide range of subjects in the general curriculum.

BOX 18

It is during the first cycle of secondary education (Grades 7-9) that the orientation towards vocational education in discrete subject areas begins. The curricular offerings make a distinction between general and vocational subjects, in preparation for vocational skills training at Grades 10 and 11. Exposure here is mainly exploratory. Pre-vocational subjects are included as a part of the core curriculum at this level by all types of secondary schools.

Vocational training begins at the second cycle of secondary education. In Secondary High and Comprehensive High Schools vocational subjects are optional. However, in New Secondary Vocational/Agricultural High and Technical High Schools these subjects are part of the core curriculum. The main aim of the programme at this level is to provide the students with skills which facilitate on-the-job training or which form the basis for further education.

JAMAICA

BOX 19

On the completion of primary education at the age of 12+, pupils undergo automatic promotion for another three years before sitting for the Lower Certificate of Education (LCE) Examination. A comprehensive type of education is provided at the lower secondary level where besides academic subjects, elective subjects of a pre-vocational nature namely Industrial Arts, Home Science, Commerce and Agricultural Science are offered. Pupils are allowed to choose one of the subjects. The main objective is to expose them to practical experiences rather than to train them to become skilled workers.

The LCE Examination at the end of the lower secondary level (Grade IX) provides a basis for the selection of qualified pupils into Grade X at the upper secondary level. At this level, pupils are channelled into the Science and Arts streams and by the pupil's own applications into Technical and Vocational streams.

Pupils in vocational schools are given courses in various disciplines such as Engineering Trades, Commerce, Home Science and Agriculture. The purpose is to develop basic career skills among pupils, increase their technical knowledge and inculcate in them positive attitudes towards these subjects as these characteristics are considered prerequisities for employment in industrial and commercial sectors. After two years in the vocational schools, pupils sit for the Malaysia Vocational Certificate of Education (MCVE) Examination.

The technical secondary schools place greater emphasis on technical and science subjects. The two-year course qualifies students to sit for the Malaysia Certificate of Education (MCE) Examination with a bias in technical subjects.

The majority of pupils enrolled in the upper secondary level are in academic schools, either in the Arts or Science streams. After two years, these pupils sit for the MCE Examination, which is recognised as equivalent to the 'O' level in the United Kingdom.

A pass in either the MVCE or the MCE Examination would qualify a candidate for employment, and would also be used as a basis for selection to polytechnics and teacher training colleges.

MALAYSIA

(ii) Inclusion of optional or compulsory (core) technical/vocational subjects in an otherwise academic school curriculum. Many Commonwealth countries combine a system of compulsory vocational skills training for most if not all students at lower secondary level with optional vocational subjects for a selected minority at upper secondary level. Jamaica well illustrates this kind of mix which is similar to the system of provision in Zambia, Trinidad and Tobago, Bermuda, Sri Lanka, Tonga and others (see Box 18).

(iii) Provision of technical/vocational programmes in separate streams. In India, for example, at the higher secondary stage, 'two distinct streams - academic and vocational - are visualised, but the latter exists in nearly 2000 institutions only having nearly 140,000 students which constitutes 2.5 per cent of the total enrolment at this stage. But a quantum jump is proposed to cover 10 per cent by 1990 and 25 per cent by 1995'.

(iv) Provision of specific pre-vocational or vocational skills training programmes in separate schools or institutes. The Solomon Islands channel skills training through the newly established Provincial Secondary Schools; Bangladesh through community schools (two, one for boys and one for girls in each upazilla) and vocational training institutes; Malta through trade schools and junior craft centres. The Malaysian example (see Box 19) is clearly elaborated.

Another group of countries - Fiji, Mauritius and Australia - leave skills training largely to post-school institutions.

(v) Work experience projects in conjunction with the secondary curriculum. Productive activities are being integrated in secondary schools curricula throughout the Commonwealth despite the constraints of financing, planning, supervision and management, and often rely on a rather complex infrastructure which sometimes involves co-operation with community and industry. Some systems attempt universal application of production with education; in others it is for a selected minority. The characteristic patterns of productive work experience are discussed below (page 29).

BOX 20

The lack of conceptual clarity about vocationally-oriented education has held back its implementation to a great extent. Apart from the role of school for vocational development which is often accepted only with reservations, the extent of vocational competence that is desired to be achieved through the school system is also marked by 'mere orientation' at one end of the spectrum to the development of employability for ready entry into the world of work on the other. This results in a variety of curricular patterns depending on the acceptance of a given concept in a particular state. It has been a common experience in some states that a softer option which allows inclusion of vocational topics/electives into an otherwise academic system stream often leads to the negation of the very aims and objectives of vocationalisation.

INDIA

India's country paper comments that one constraint on vocationalisation is a 'lack of conceptual clarity'. Both India and St Kitts and Nevis emphasise the need for a more clearly defined scheme for organising vocational programmes, and highlight some of the difficulties (see Box 20). The need for conceptual clarity applies not only to (1) organisation of provision, but also to (2) policy goals and appropriate programme objectives to meet them; (3) understanding of appropriate curriculum content; (4) management, planning and infrastructural requirements for achieving defined objectives and overcoming identified constraints. Many countries clearly perceive the complexities of vocationalisation and diversification, and take realistic account of the obstacles to achieving national goals; others have a way to go.

**Target Groups and Coverage**

The aim of many vocational programmes is to introduce some vocational education (Malawi, Lesotho, Trinidad and Jamaica) or at least some productive work experience (Zambia) for all students. Other systems confine vocational programmes to those whose natural aptitude is not academic (Solomon Islands, Maldives), or who are otherwise disadvantaged - the disabled, handicapped, women, tribal minorities, the deprived, neoliterates, school leavers, the unemployed and underemployed (India); dropouts, unemployed youth and rural untrained youth (Bangladesh, New Zealand). Increasingly, vocational preparation is seen as a life-long process which must encompass all citizens in the community (Swaziland, Guyana, New Zealand).

What is difficult to assess, in the absence of useful statistics in the country papers, is the coverage which is actually achieved in Commonwealth countries. Many are frustrated because coverage is not as extensive as policy demands, because of material and staffing constraints (Lesotho and Zimbabwe). The following may indicate the parameters of the problem:

> Tanzania has 10,000 primary schools with 3.2 million pupils and 235 secondary schools with 90,000 students (transition rate about 3 per cent). Post-school programmes for leavers are officially available through 313 Ministry of Education Post-Primary Vocational Training Centres (currently enrolled to only 18 per cent of capacity), 52 Folk Development Colleges, 10,600 adult education centres, and National Vocational Training Centre (Ministry of Labour and Manpower Development) which take 2,250 trainees.
>
> India provides some vocational training at 2000 senior secondary schools to 140,000 pupils. This represents 2.5 per cent of the cohort. It is intended to expand this proportion to 10 per cent by 1990 and 25 per cent by 1995. (1983 estimate enrolment ratios: primary 85 per cent, secondary 34 per cent.)

**Women and Girls**

Girls are still being offered and enrolled in programmes oriented to women's traditional roles in society: domestic science/home economics including needlework, and secretarial science. Some take agricultural science along with boys. The overall number of girls in vocational programmes is significantly lower than boys, sometimes because fewer have come forward, sometimes because provision is less generous than for boys.

BOX 21

Australia is concerned that girls are not participating fully in all subjects. There is particular concern at the imbalance between the number of boys and girls who take mathematics and science courses. Fewer girls and boys tend to take such courses, leading to restricted occupational opportunities for girls and limiting the pool of young people with a sound foundation in these areas of importance to economic and technical development. Projects are being funded to give more equitable representation of girls in these subject areas. With a more broadly based secondary education girls will increase their range of future options and should become more proportionately represented in all careers.

New South Wales is one state with initiatives directed to the special situation of girls. It has introduced the following projects:

"Projects for Girls" which is designed to broaden career options for girls.
"Increasing the Participation of Girls in Mathematics" which is aimed at identifying and developing strategies which will encourage girls to participate in Mathematics.
"Initiatives for Girls" which includes activities to extend girls' knowledge of the opportunities made available by choosing technical subjects, computing, physical sciences and mathematics at higher levels in the context of changing roles of women.
"Girls Technology Strategy" which has the objective of increasing girls' confidence and competence in the fields of Science, Technics and Technology.

There has been encouraging results with increases in the proportion of girls studying higher level Mathematics, Physics and Chemistry.

AUSTRALIA

Many governments, as a matter of policy, say they do not discriminate against girls entering vocational programmes and emphasise equality of opportunity for both sexes. But in practice, the imbalance is sometimes dramatic: in Botswana, there is no official sex discrimination in entry to skills training programmes, but only seven per cent of trainees in the Botswana Brigades programme are female.

In fact, several governments have committed themselves to a policy of positive discrimination, taking innovative steps to enhance programmes for women and encouraging their participation in a wider and more purposeful range of courses. It is useful to look in some detail at how this is being done.

Maldives. Equal opportunities exist for boys and girls, but efforts are being made to reduce sex stereotyping: boys must choose one or more of the areas traditionally thought to be 'special to girls' and girls must include a 'boys only' area in their choice.

Australia. Projects are being funded to correct imbalances between boys and girls which occur in maths and science courses, for example (see Box 21).

St Kitts and Nevis. The Basseterre High School Project was initiated to attract better female students to an innovative programme designed particularly for girls 'since most of the other technical vocational subjects are male dominated'.

India. The National Policy on Education (1986) placed major emphasis on the participation of women in craft, technician and professional training programmes, with a policy of non-discrimination aimed at eliminating sex stereotyping in education and training and promoting women's involvement in non-traditional occupations as well as in existing and emerging technologies. In fact, although there are no restrictions on women and girls, only a few programmes attract them. Special efforts are therefore being made to create separate vocational institutions for women at the post-school level.

Tanzania. Similarly, special school provision for girls as a matter of policy is being extended in Tanzania (though not specifically geared to vocational courses): girls compete among themselves to fill their assigned quota of Form 1 places; all new secondary schools are co-educational or girls only; boys' boarding schools are enrolling day girl scholars; and hostels for girls are being built at formerly boys-only technical schools.

Mauritius. A Ministry of Education public relations initiative is encouraging girls to join technical/vocational courses with assistance from the Ministry of Women's Rights and Family Affairs, and several women's organisations.

BOX 22

Articulation is an issue which arouses a good deal of interest in all parts of Canada. Articulation is understood to be the result of being able to develop an educational system that is holistic, where components of the educational experience are clearly structured so that there is a minimum of duplication and overlap. In an articulated system, the individual student is able to move from one level of experience to the next with relative ease. Students in an articulated system know that the paths of their education are interconnected and that they have a number of educational options available as their educational needs develop. They know that all of their educational achievements are recognised and have value. The foundation of articulation is the ability of the jurisdictions to identify and gain agreement about what constitutes a vocational area particularly from a task perspective. Secondly, to achieve articulation, agreement must be reached on what is the best way to provide the training in the tasks and when and by whom.

CANADA

BOX 23

ACCESS training is essentially a partnership between government and local communities in the administration of education and training at the post-school level. Government has decided that decision-making will be devolved to a series of 21 Regional Employment and Access Councils appointed by the Minister of Employment to draw up a training plan for their region, and to contract with training providers, either from within or beyond the education sector, to furnish the sorts of training necessary in each particular region. The government is determined to target these programmes to the most disadvantaged and has decided that the funding of providers of training should be tied to a targeting system. In effect, a provider is paid more (120 per cent of the agreed cost per trainee week) for enrolling the most seriously disadvantaged. Conversely, for enrolling the least disadvantaged, the training provider is paid less than 100 per cent of the agreed cost.

NEW ZEALAND

Guyana. The reorganisation of the education system, particularly at the secondary level, reflects government's determination to eradicate stereotyped concepts of the roles of men and women in all forms of education. More specifically, a pilot project for the Promotion of Equal Opportunities for Girls and Women in Technical and Vocational Education at the Secondary Level, mounted in conjunction with UNESCO, aims to sharpen students' awareness of career possibilities and conditions in technical and vocational occupations, and to counteract traditional sexist attitudes towards training and employment in technical fields.

## POST-SCHOOL VOCATIONAL TRAINING

The pattern of post-school technical and vocational skills training programmes will not be discussed in detail because the country papers were focussed primarily on school-based vocational programmes. Country papers listed, often in passing, a wide variety of programmes for varying target groups of learners. It is interesting to note that as the 'learning network' broadens and deepens to incorporate learners of all ages and abilities, there is a distinct blurring of the traditional separation between 'formal' and 'nonformal' categories. Concern that learners should be able to move easily and efficiently within the learning network has encouraged Canadian authorities, for example, to consider ways of improving the 'articulation' of various components of the system (see Box 22).

### Targets

Some post-school programmes offer formal craft, technician and technologist skills programmes for secondary graduates like the Colleges of Technical and Further Education (TAFE) in Australia, the Zambia Institute of Technology and the Seychelles Polytechnic. Many others attract and re-orient the unschooled and early school leavers. Others concentrate on handicapped, isolated or 'native' communities with special needs. Still others are workplace-directed, aimed at retraining the unemployed and upgrading the employed. New Zealand is taking positive steps to ensure that disadvantaged groups benefit particularly (see Box 23).

### Authorities

Post-school programmes are initiated and/or managed by a wide range of authorities and agencies:

(1) Ministry of Education: trades training and technical institutes, polytechnics and technical colleges, craft centres: adult education institutes
(2) Ministry of Labour/Manpower Planning: trade training/trades testing centres
(3) Ministry/Department of Social Welfare/Community Development: women's craft groups

BOX 24

The Directorate of Industrial Training administers industrial vocational training through four specialised sections namely:

(i) Trade Testing, Guidance and Certification

(ii) Apprenticeship and In-Plant Training

(iii) Systems and Standards Development

(iv) Vocational Training Institutes

The Directorate designs programmes to benefit quite a wide spectrum of groups. These are:

(i) Apprenticeship Training requires boys and girls of at least 16 years of age and a minimum standard of 9 years of general education.

(ii) School leavers with Ordinary Level Certificate of Education aspiring to become Craftsmen or self-employed.

(iii) Industrial workers of varying standards of formal education and training who would like to upgrade their occupational knowledge and skills.

(iv) First year B.Sc. Engineering students from the Faculty of Technology, Makerere University are introduced to basic engineering skills early in their programme.

(v) Drivers/Mechanics, Supervisors/Foremen in industries undergo specialised training at the Directorate.

UGANDA

(4) Ministry of Defence/Ministry of Youth and Sport: training centres, National Youth Service
(5) Sectoral Ministries - like Health, Agriculture, Rural Development, Fisheries, Water Resources: specialist training programmes for staff and extension programmes for farming and fishing communities
(6) Parastatals: specialist training programmes in institutions or on the job
(7) Statutory Bodies: Directorates of Training or Training Authorities which both co-ordinate and/or train (see Box 24, Uganda)
(8) Private Sector Employers: institutional trades/technician training, on-the-job training including apprenticeship (see below) and sponsorships to tertiary institutions
(9) Community Groups and Local Authorities: skills training centres
(10) Religious/Missionary Organisations: skills training centres, women's/family groups
(11) Other NGOs, Agencies and Volunteer Organisations: a variety of community-based programmes.

It is not always clear what active endorsement is given to post-school/out-of-school programmes in the non-government sector, or their actual coverage, but it seems that Ministries of Education rely increasingly heavily, sometimes as a matter of stated policy, on programmes initiated, mounted and sustained by other authorities, particularly in the private and voluntary sectors. Ministries may no longer attempt to provide a vast range of training facilities, but be content instead to regulate and co-ordinate training provision within the learning network (see Organisation, Co-ordination and Co-operation, page 18).

**Apprenticeship**

Greater attention given to an extended apprenticeship system may be evidence of the willingness of Ministries of Education, Labour or Manpower to renew or consolidate their training partnership with the private sector. In the 1970s, Zambia, on the advice of Canadian technical education consultants, dismantled its apprenticeship system. There were a number of good reasons for shifting towards institution-based training at craft and technician levels:

(1) resources - while copper prices were high - seemed to be sufficient to underwrite the heavy cost of institutional training
(2) trade unions had been historically racially-biased against Zambian apprentices
(3) assessment and certification of apprentices was based on what had become outmoded and increasingly irrelevant externally-devised qualifications
(4) in a relatively small industrial sector (excluding mining)
    (a) companies were small and ill-equipped to train especially above the craft level, and often could at best train youngsters for a limited and restrictive range of job-related skills rather than a broad range of occupational skills

BOX 25

Apprenticeship training, normally associated with a contract of service with an employer, has been changed to a Contract of Training, with apprentices being contracted to the Apprenticeship Board and paid a training allowance during their training contract. On the job training is effected by attachment of apprentices to a training employer who has no financial commitment but agrees to accept a training role. Due to market requirements for skills, entry into any trade occupation takes place only every two years. However, the system is flexible to the extent that any entry can be delayed and financial resources re-allocated to priority areas should the need arise.

KIRIBATI

(b) some companies were not efficiently run and exemplified only poor practice and procedure to trainees

(c) some firms were not willing to train apprentices who might be poached by competitors.

Subsequently, institutional pre-employment training was concentrated at trades training institutes and four tertiary technical and commercial institutes. While the new institutions - which were generously designed and built - sought to inject an element of glamour into craft training programmes, and to overcome conservative bias against the new certificates, the very high cost of institutional training and the difficulty of replicating on-site experience in the classroom, lab or workshop, inter alia, detracted from the apparent advantages of institutional training.

The Zambian experience highlights problems which persist with both on-the-job and institutional training, but to many governments in the 1980s, split-site, sandwich and block-release programmes which place primary responsibility for training with employers seem both cost-effective and efficient.

Nigeria is regularising the apprenticeship system - which has flourished informally - by stipulating entry requirements, length of training and trainees' rights.

Botswana. British vocational qualifications have traditionally been used, but the recent Apprenticeship Act provides for national trade testing. Regional Vocational Training Centres now being built will cater for the institutional component of apprenticeship training, and the new Industrial Training and Trades Test Centre in Gaborone will be the home of the trades testing unit and the administrative centre for apprenticeship under the auspices of the National Board for Apprenticeship and Industrial Training (NABAIT). Instructor training is now under way and the craft skill components of the scheme are being defined. The creation of the apprenticeship scheme is conceived of as a nation-wide project.

Kiribati has initiated an innovative concept of apprenticeship training (see Box 25).

Malta. The 'Extended Skills Training Scheme' is a form of apprenticeship within industry.
The Education Department provides the curriculum development, facilities, equipment and staff for the institutional component of the scheme.

Cyprus. The Ministry of Education runs institutional courses for the apprenticeship scheme which is administered by the Industrial Training Authority and the Ministry of Labour and Social Insurance. Formal training in industry has been found difficult because of the relatively small size of industrial establishments. Pupils leaving primary school or secondary school can join a three-year apprenticeship scheme, attending prescribed courses at Technical Schools one day per

BOX 26

Larger companies have initiated a variety of vocational training schemes to ensure that employees reach minimum standards of proficiency in a production environment. For example, the Brunei Shell Petroleum Training Centre at Seria, one of the largest of any Shell company in the world, offers a wide range of craft, technician, business and supervisory on-the-job training programmes. The training that is provided by larger companies is at different levels and includes pre-service, induction, inservice, assignments to new tasks and so on.

Where skills requirements cannot be met locally, either from technical or vocational institutions, or their own local organisations, training facilities of parent companies are sometimes made available to train limited numbers of trainees showing the greatest potential for assuming higher responsibility. The less established and smaller companies have not, in all cases, been able to establish such self reliance. Many need assistance in designing and developing training programmes to suit their needs. They need advice on a wide range of topics including the development of apprenticeship programmes, writing job descriptions, developing employee interviews and evaluations and other industry-based training methods. In order to attempt to alleviate some of these problems, initiatives are underway to establish an industry-based job training centre, initially with responsibility for the construction industry, to provide assistance to employers by providing systematic on-the-job training programmes. In addition, the Centre will monitor training provision and establish a system for registering training opportunities, including apprenticeship programmes.

BRUNEI DARUSSALAM

BOX 27

Recent developments have done much to clarify perceptions of the relative responsibilities for the provision of vocational education and training. The Government has played a major role in influencing development within and beyond the education system. The major responsibility must rest with the education service, not least because good education should do more than provide young people with only the specific skills needed by particular employers at any one time. A sound foundation for life-long education is considered essential, but can be achieved only through a partnership between educators and employers. This reflects the Government's commitment to the education service as a partnership between the Secretaries of State for Education and Science and for Wales, the agencies which provide education, the young people who receive it, and others, including parents and employers, who are concerned with its outcomes.

BRITAIN

BOX 28

Given the limited range of basic infrastructure facilities, the entire authority to organise and administer vocationally-oriented education lies within the overall domain of the Ministry of Education, whether it be in the area of the formal school system or the nonformal sector. However, the related sectoral ministries, departments and institutes do play an important role at the planning and programming stage. In particular, an intersectoral ministerial committee guides the policy decisions in the area of more specialised job-orientated technical education.

MALDIVES

week for the first two years and three days per week in the third year. Courses include general education, technical subjects and workshop experience in basic craft skills. School workshops are being used to train apprentices in the afternoons when they are not being used by full-time courses.

Brunei Darussalam concentrates on improving training capacity within industry (see Box 26).

Bangladesh notes in passing that 'prior to the establishment of any institution of formal vocational/skill training, trainees used to be attached to good skilled men as helpers, and they gradually developed the skill after a long time. Most of the trades were family trades and family members took the opportunity of developing the skill through a long process of working with their parent/relative'. Nigeria and Sierra Leone also mention traditional apprenticeship schemes, but regrettably no other information was received in this survey about informal apprenticeships of this kind which have played an important role in a number of Commonwealth countries.

## ORGANISATION, CO-ORDINATION AND CO-OPERATION

Ministries of Education are only one among a wide range of authorities and agencies which initiate and maintain technical education and vocational training (page 15). The country papers highlight the roles of other decentralised education authorities, other government ministries, parastatals and statutory bodies, employers in all sectors, voluntary, church and mission agencies and community groups (Britain, see Box 27).

The complex training systems which have evolved in many Commonwealth countries have thrown up a variety of mechanisms which promote or facilitate the co-ordination of training activities. The characteristics and purpose of such mechanisms vary widely from country to country and it is virtually impossible to categorise them. Some are located strictly within the Ministry of Education, on a formal or on an ad hoc basis, and may be directed toward a broad band of activities - nonformal education or youth unemployment, for example - or towards very specific programme activities such as planning, curriculum development, standards, certification and examinations, on-the-job training or work experience placements, facilities, teaching staff, work/study and block release programmes, where particular assistance is required of other authorities. Some are established as statutory bodies with responsibility for a specific type of programme. Other statutory bodies or ministries may be responsible for co-ordination of training at the national level, with perhaps a special emphasis on resolving the 'school leaver' or 'unemployment' crisis.

It is instructive to examine some models of co-ordination and co-operation.

The Malaysia country paper describes a variety of co-operation and co-ordination mechanisms (see Box 29) perhaps typical of larger countries. In small countries, co-operation remains largely undifferentiated (see Box 28 on the Maldives).

BOX 29

The Technical and Vocational Education Division (TAVED) of the Ministry of Education was established in 1964 with the responsibility of promoting technical and vocational education in the country. The main function of the Division is the planning, implementing and supervision of technical and vocational education in Malaysia, involving supervision, administration and development of vocational programmes at all levels, teacher training, equipment and facilities and liaison with the public and private sectors regarding work opportunities for technical and vocational students.

Besides the Technical and Vocational Education Division of the Ministry of Education, other Government Ministries and agencies are also involved in vocational training for out-of-school youth at various training centres throughout the country. These training activities are further supplemented by private training institutions and private companies carrying out in-house training for their staff.

Co-ordination of the various training activities becomes a vital function. This co-ordination function is carried out by various co-ordinating bodies at central level.

At the national level, macro planning is executed by the Economic Planning Unit (EPU) of the Prime Minister's Department, while micro planning is done by the management of the organisation concerned. The EPU is in the best position to carry out macro planning as it will be able to relate training requirements with economic considerations.

One of the main recommendations (of the Fifth Malaysia Plan and the Industrial Master Plan) is the setting up of a National Vocational Training Council to co-ordinate all vocational educational and training institutes throughout the country. This council will be under the Prime Minister's Department and will ensure a greater linkage between institutions and the industrial sector.

MALAYSIA

BOX 30

The H.E.A.R.T Trust was established in 1982 to co-ordinate nonformal skills-training programmes. In its initial stages, the programme offered skill-training and employment for secondary school leavers. It has, however, been extended to include a wider range of adults. Six academies have been established, one for each of the following areas: commercial skills, building skills, garment manufacture, resort skills, agricultural skills and cosmetology. There are also training centres throughout the island.

Participants in the programme must be 17 years and over and have at least completed Grade 9 in the formal school system. The curriculum comprises vocational skills training (70%) and related academic systems (30%). Instructional methods are competency-based. The programme involves on-the-job training and is supported by the government and private sector employers who make financial contributions as well as provide training opportunities.

JAMAICA

(1) **Co-ordination Among Training Authorities at National Level**

(a) Zimbabwe. While the Ministry of Education plays a key role in preparing students for further training, the Ministry of Labour, Manpower Planning and Social Welfare was charged with responsibility to (i) coordinate and evaluate in-service programmes in public and private sectors; (ii) link youth training programmes with planned skill centres to ensure uniformity of training provision; and (iii) ensure greater co-ordination of technical education at secondary and tertiary levels.

(b) The Gambia. A National Vocational Training Board has been appointed, as provided in the National Vocational Training Act of 1979, to (i) formulate policies and guidelines for the National Training Programme taking into consideration general economic and manpower requirements, the development of the education system, and the administration and management of labour; (ii) coordinate and expand private and public training activities, at all levels, in urban and rural areas; and (iii) study the National Training Programme and make regular analysis and projections with a view to responding to changing requirements for different types of skill and knowledge. The Board supervises the National Training Programme through the Programme Directorate.

(c) Bangladesh. In 1979, the National Council for Skill Development and Training (NCSDT) was established with the Minister of Labour and Manpower as chairman, and Secretaries of concerned ministries and Heads of Department as members. The Council monitors skills standards and coordinates the vocational training activities of different Ministries and departments.

(d) Tonga. The Ministry of Education through the establishment of the Community Development and Training Centre co-ordinates the various training programmes in teacher education, marine training, nonformal skill development programmes, and training carried out in non-government institutions.

(e) Jamaica. The Human Employment Resource and Training (HEART) Trust, a statutory body in the Ministry of Youth and Community Development, is the umbrella organisation responsible for all vocational training within the nonformal system and develops and monitors training programmes for young people in the seventeen-plus age group (see Box 30).

(f) Trinidad and Tobago. The National Training Board and the Board of Industrial Training which work in close liaison with the Technical/Vocational Education and Training Division of the Ministry of Education oversee all training activity in the country.

BOX 31

The Ministry of Education and Culture has responsibility at the national level for the organisation, management and administration of both formal and nonformal vocationally-oriented education and training. At the school/institutions level, Boards of Management, appointed by the Minister with responsibility for Education, have the mandate for ensuring that the government's policies on vocationally-oriented education are implemented.

Liaison between educational establishments offering vocationally-oriented education, and industry and commerce is ensured by, wherever possible, having among the Board Members of these institutions persons from these sectors of the economy. In addition, especially at the post secondary level, valuable assistance in terms of relevance of curricula offering to work is provided by the work of such persons on trade committees which are advisory in nature.

Considerable emphasis has been placed on the collaboration between institutions in an effort to promote the rationalisation of resources and to improve efficiency. As a result of this interaction each institution has been able to develop a clearer perception of its role in the training effort and has been developing more informed strategies for accomplishing its work.

BARBADOS

BOX 32

The National Industrial and Trade Certification Board (NITTCB) was established in 1971 with the aim of standardising the development of vocational training programmes and to establish tests and certificates corresponding to the various levels of skills. The Board is composed of 21 representatives of employers organisations, workers organisations and ministries involved in skilled manpower development and/or vocational training in the industrial sector. NITTCB also assesses and issues recommendations concerning existing training programmes and facilities, and drafts and implements the national programme of tests, examinations and certificates.

MALAYSIA

BOX 33

The Ministry of Human Resource Development in respect of vocationally-oriented education and training, lays down the policy, discharges the function of overall co-ordination, provides financial resources in respect of certain schemes, provides R & D support through its autonomous organisations such as National Council of Educational Research and Training and National Institute of Educational Planning and Administration. The NCERT plays the major role for implementation of Work Experience and higher secondary vocational education programmes. It provides the overall guidance, develops model syllabi and instructional materials, conducts training and orientation programmes and serves as the national nodal agency for all academic purposes. The actual implementation on the ground lies in the hands of the state directorates.

INDIA

(2) **Ministry of Education-based Activities**

In smaller countries, as we have seen in the case of Tonga, collaborative activities may centre in the Ministry of Education. Barbados (Box 31) relies on relatively ad hoc arrangements for co-ordinating training initiatives.

On the other hand, in 1986 Lesotho established a Department of Vocational and Technical Education within the Ministry of Education. The Department is charged with the responsibility to co-ordinate and control all vocational and technical education and training through needs assessment surveys, curriculum design and development, syllabi preparation and approval, supervision and inspection, examinations, trade testing and apprenticeship. In order to enhance collaboration amongst all bodies concerned with vocational and technical education and training, a Board of Vocational and Technical Education has been formed by legislation to (a) provide advice and guidance to the department with respect to the quality of vocational training; (b) assist the department to ensure the development and preparation of proper curricula and syllabi for all training institutions; (c) develop through specialist committees competency check lists for conducting skills tests under various designated trades and occupations; and (d) promote the link between vocational education and the world of work. Board members include representatives of various ministries, churches and the industrial sector.

(3) **Training Authorities with Particular Responsibilities**

Statutory bodies exist in some countries which regulate, monitor and co-ordinate specific kinds of training activities.

(a) Botswana. Such committees as the National Board for Apprenticeship and Industrial Training (NABAIT), Trades Advisory Boards associated with the new apprenticeship scheme, and various institutional consultative committees all guarantee the input from concerned parties and their co-operation during work attachments.

(b) Malaysia. The National Industrial Training and Trade Certification Board, established in 1971, has monitoring and co-ordinating roles in examination and certification (see Box 32).

(4) **Activities-related Co-operation**

(a) India. The National Council of Education Research and Training plays a major role in facilitating co-operative activities in the training network (see Box 33) through its service and support role.

(b) Malawi. First, there is co-ordination between the Ministry of Education and the Ministry of Labour in apprenticeship training. While the Ministry of Education provides facilities for training, the Ministry of Labour administers and monitors the industrial attachment part of apprenticeship training. Second, the Ministry of Labour, along with the Ministry of Works and Supplies, and the University of Malawi, has representatives on the syllabus and examination

committee for the Malawi Government/City and Guilds Craft and Advanced Craft Training. Third, examiners are approved by a Technical Examinations Council whose members are drawn from Ministries of Labour and Education as well as from other government ministries, from industry and associations dealing with the welfare of industrial workers.

Many Ministries of Education involve employers on curriculum and standards advisory committees in preparing examinations and approving or ratifying certificates, in designing and mounting new courses, in organising work attachments, in optimising use of training facilities and so forth, especially at the tertiary level.

BOX 34

A National Training Plan is proposed. The need is recognised for a comprehensive structure for delivering training and educational services related to the world of work in order to facilitate the development and implementation of national objectives, targets and strategies for training. Some of these include:-

(i) Development of Vacation Employment Programmes designed to involve students in technical/vocational projects within the framework of the technical/vocational programmes currently being offered in the school system:

(ii) Restructuring of the delivery system of technical/vocational curricula so that the programme can provide technical/vocational services to the community for profit;

(iii) Conducting of Empirical, Occupational and Manpower Studies;

(iv) Establishment of part-time or evening continuation classes for students.

TRINIDAD AND TOBAGO

BOX 35

Towards the end of the 1970s, about 60% of all young people were leaving full-time education at the minimum age of 16, mostly with few, if any, qualifications. Many steps have been taken within the schools and colleges to change that situation through curriculum development, reforms of the examination system and by the extension of the Youth Training Scheme. Much remains to be done, although the percentage of 16 year olds in full-time education has risen from 41% in 1978/79 to 45% in 1985/86.

BRITAIN

## II IMPLEMENTATION

### ACHIEVEMENTS

Some smaller countries, like Lesotho, Botswana, Dominica, and Trinidad and Tobago (Box 34) are still working through the policy formulation stage, towards creating a viable infrastructure for vocational programmes. Other countries, in identifying goals which have been achieved over the past decade, concentrated on two kinds of initiative or innovation: quantitative expansion of vocational programmes, and improving the planning and management infrastructure.

(1) **Quantitative Expansion of Vocational Programmes**

(a) St Kitts and Nevis has concentrated on both qualitative and quantitative improvement of vocational provision. To expand vocational and technical education capacity, St Kitts has joined four other Organisation of Eastern Caribbean States in a multi-purpose education development project aimed specifically at tackling high levels of unemployment which exist concurrently with critical shortages of job skills. In St Kitts and Nevis, the project will involve renovating classrooms and workshops for two junior secondary schools, multi-purpose training centres, and on each island, furniture and equipment for both schools and the Technical College whose capacity will be expanded to 150 graduates per year (currently 130). Anticipated annual output from multi-purpose centres would be 360 (now 245). Extensive staff training is also involved.

(b) Malaysia has embarked on a massive expansion of its Secondary Vocational Schools programme.

(c) India anticipates a significant expansion of vocational stream places in senior secondary schools by the end of the century.

(d) Britain has concentrated on encouraging larger numbers of young people to continue their education and training after the minimum age of 16 (see Box 35). New Zealand too aims to improve the participation rate of young people in training from a present level which, it believes, compares badly with other OECD countries.

(e) Australia has similarly concentrated on expanding the number of appropriately prepared graduates by improving retention rates, at least in part by making a wider choice of subjects available in the post-secondary years (the TAFE programme).

BOX 36

Distance education is recognised as having the potential to provide a wide range of assistance for providing educational services, supplementary materials to support the classroom teacher, enrichment materials beyond the normal capability of the school, and possibly direct instruction. Many educational jurisdictions in Canada are investigating how to use technology to deliver education at a distance. Ontario, Alberta and British Columbia have sophisticated systems for the delivery of programmes via television. Saskatchewan is investigating the establishment of a fibre optics distance education system. Quebec is using distance education to provide teacher in-service training programmes. Telephone links, mobile laboratories and mail service are all part of the distance delivery of education.

CANADA

In 1986, the apparent retention rate from first to final year of secondary school was 48.7 per cent nationally, compared to 46.4 per cent in 1985. The objective of increased educational participation prompted the implementation of the Participation and Equity Programme (PEP) which seeks inter alia to encourage young people to participate in education or training at schools or technical and further education institutions, or in other forms of education and training, until they have completed a secondary education or an equivalent course of education and training. PEP seeks to do this by stimulating the provision of new, more relevant subjects at the post-secondary level, and revitalising traditional areas of study in a number of ways, including using more flexible timetables and creating integrated courses.

(f) Jamaica has added two years of schooling to Junior Secondary Schools and renamed them New Secondary Schools, with vocationally oriented curricula aimed at further training and tertiary education. A work experience programme has been made an integral part of the grade 10-11 programme. A World Bank loan negotiated during the 1970s has provided for construction of 12 New Secondary Schools, one Technical High School, expansion of five existing Technical High Schools and upgrading the Agricultural Training Centre.

(g) Canada must deliver vocational education to a population which is frequently sparse and dispersed, scattered across a vast territory where climatic conditions are often adverse. The need to deliver quality vocational education to all individuals in the school system, and a compulsory vocational course requirement, have provided the impetus for distance education research and development (see Box 36).

(2) Improving the Planning and Management Infrastructure

(a) Jamaica. The Technical and Vocational Education Unit was established in 1975, bringing technical/vocational areas under one administrative head to ensure integration and rationalisation of programmes. The Unit provides the Ministry of Education with specialised expertise for managing technical/vocational education and training for all levels of the education sector.

(b) India is concerned with the lack of planning (setting out defined targets, financial requirements, norms, congruence between supply and demand for manpower) inadequate preparation (of budgets, of teachers, of appropriate curricula and materials, of in- frastructural facilities and collaborative instructional arrangements) and the weakness of management of vocational programmes. These weaknesses and constraints were given due attention during the recent policy formulation exercise and remedial measures are being taken.

BOX 37

The basic constraints arise from the general characteristic of lack of manpower and shortage of trained staff, which is common to all sectors, whether it be private or government or whether it be skilled or semi-skilled. There is a severe staffing problem, both for curriculum development, and for the teaching of the subject. This is apparent from the fact that over 80% of the staff in the capital are expatriates and all teachers teach on two or even three shifts in the islands. Once the curriculum manuscripts are available, there are difficulties in production; the use of two languages, English and Dhivehi, poses additional difficulties. The latter is still a handwritten language for printing purposes without the facilities for letter-press or other technical transformation. Hence it is largely not a matter of lack of funds alone but lack of absorbing capacity in the hands of local personnel. The problem of delivering of materials to the remote scattered islands before it is too late is a common one. Transport and communication in a multi-island situation like the Maldives hinder the smooth provision of materials including the minimal 'teachers notes'. The trained teachers themselves are generally of low academic background so much so that the students whom they teach have now reached the level of the teacher. In situations like these, there is very little that an individual single teacher can do to teach the subject matter. As a result, the subject is finally dropped from the time-table. Further more, because of the urgent need the learning materials are widely distributed as when possible even when they are meant to be trial materials distributed without any feedback of its actual relevance, coverage, quality and adaptability.

MALDIVES

BOX 38

An additional benefit of practical subjects that has been observed is that these subjects introduce a range of skills in the schools which have been absent for a long time. Given the scarcity of funds and inadvertent neglect of physical facilities teachers, with the assistance of pupils and parents, are now often found to use these skills to repair furniture, maintain classrooms, or build teachers' houses.

ZAMBIA

(c) Trinidad and Tobago. The main emphases in current plans to intensify the vocational orientation of education include: streamlining the administration of technical/vocational education and training services, putting in place a system to ensure that programmes in the schools are implemented as planned, establishing an evaluation system to ensure that programmes are effective, monitoring the match between programmes and the labour market needs, and developing and maintaining a National System of Occupational Information on 3000 occupations identified in Trinidad and Tobago.

## CONSTRAINTS ON IMPLEMENTING SCHOOL-BASED VOCATIONAL EDUCATION

The experience of the Maldives in introducing vocational curricula at primary level (see Box 37) is indicative of the problems which many Commonwealth countries have encountered in introducing vocational programmes in schools. Countries were asked to comment on important constraints on both the supply side and on the demand side - among students, their parents, and employers - and to suggest ways in which they might be tackled. They readily listed the constraints; proven ways of surmounting them were as scarce as gold nuggets.

**Constraints on Provision** (see also Cost Effective Management of Resources, page 36).

(1) **Equipment, Materials and Facilities, Including Maintenance and Servicing**

The litany of constraints on equipping vocational programmes has remained consistent for years: equipment is costly and hard to get (Malawi); it breaks down because teachers are not trained to use it properly (The Gambia); it is difficult to keep up to date with the latest technology, and maintenance is either non-existent, poor, or costly (Australia, Malawi, Mauritius, Trinidad and Tobago). Appropriate support materials - books, teaching notes, especially in the local language of non-English-speaking learners - are lacking (Maldives, Bangladesh) as are electricity for workshops and an efficient transport system for delivering materials (Fiji). Zambia comments on the difficulty of securing the infrastructure for rural schools' productive work component: water, land, transport, and tools of an appropriate design and cost.

Several innovations are described which confront the problems of workshop equipment and machinery.

(a) Trinidad and Tobago plans to use facilities of the Technical Institute to upgrade the training of maintenance technicians.

(b) Zambia suggests that practical vocational skills nurtured by schools can be applied to school-based maintenance and repair systems (see Box 38).

(c) Bangladesh has established a Central Store cum Service Workshop with mobile technicians to repair and maintain equipment and machinery in schools, and to train teachers in their use.

BOX 39

With the aid of donor funding, a secondary school 'Technical Tool Kits Project' was launched to increase coverage in the practical subject area. The fundamental aims of this project can be stated as follows:

(i) to provide sets of tools and materials to secondary schools not currently offering technical subjects;

(ii) to ensure that all operating secondary schools have the necessary kits to offer a minimum of 2 technical subject options;

(iii) to increase the number of rural schools offering technical subjects;

(iv) to provide in-service courses in the use of these kits to all teachers receiving these kits.

The subjects involved are Agriculture, Building, Fashion and Fabrics, Food and Nutrition, Metal Work and Technical Drawing. During the first phase in 1985, 350 secondary schools received the kits. The kits are distributed free and Responsible Authorities accept them at 25% of cost price. Arrangements are made to deduct this from the per capita grants.

ZIMBABWE

BOX 40

Vocational programmes of schools have never been a subject of planned interventions. Achievable targets were not spelt out, outlays not explicitly provided and uniform norms backed by effective monitoring have not been attempted in the past. Congruence was never established between demand and supply of manpower corresponding to the school level courses. Financial provisions were never made in the central budget (except very briefly several years ago) and those made in the state budget were generally inadequate. [Further,] often the vocational programmes were started with very inadequate preparation. Teachers of proper quality were not readily available, courses were generally adopted from other systems often not quite comparable to school, instructional materials of proper quality were hardly available, infrastructural facilities were generally inadequate and collaborative instructional arrangements not properly developed. [Finally,] the management of vocationalisation was also a very weak link in implementation in many states with regard to structural arrangements. The diversity and complexity of organising vocational education demand a great deal more attention than given in the past.

INDIA

(d) Zimbabwe has designed an innovative tools delivery system for schools which wish to introduce practical subjects (see Box 39). Botswana has adapted the idea and sends out BOTKITS.

(2) **Supply of Vocational Teachers**

The shortage of vocational teachers is virtually universal. It is the major stumbling block to expanding training opportunities in schools. The issue is discussed in detail below (see Staffing, page 33).

(3) **Supervision and Support Services for Vocational Teachers**

Vocational teachers lack professional support in their often isolated work stations (Solomon Islands, Malawi, Tonga, Maldives, Lesotho). They are not properly supervised or inspected under such circumstances, and have to work without access to regular supplies of consumables, or transport to get them (Solomon Islands). But Solomon Islands has effectively used its curriculum development staff in a professional support capacity.

(4) **Cost and Financial Resources**

Vocational education is expensive, perhaps two or three times more costly than academic education. But generally inadequate government funding imposes limits on qualitative improvement and quantitative expansion of training systems.

Proposals for making vocational programmes more cost-effective, for maximising the value of scarce resource - material, human and financial - are considered below (page 36). Two main themes which emerged are (a) extending the resource base and (b) careful management of resources, materials, facilities and staff.

(5) **Planning and Management**

India sets out clearly a series of planning and management constraints which have latterly received belated attention in Commonwealth countries (see Box 40). Trinidad and Tobago, like Malaysia, suffers because of shortages of administrative and professional staff in technical/vocational fields, particularly at headquarters, and this lack of management capacity spills over to schools and production projects (Solomon Islands, Papua New Guinea).

Jamaica has established a technical/vocational planning unit; Barbados seeks a more rational and clearly defined administrative framework.

A universal difficulty in planning vocational education is the problem of relating output to labour market demand. Barbados has undertaken a 'Review of Technical and Vocational Education in Barbados' and a national manpower survey to bridge this gap.

BOX 41

While in the post-secondary level of the technically-oriented courses there is an increasing number of students who apply for the limited number of places - which is dictated by manpower considerations - in the secondary level the number of pupils following technically-oriented courses is below government expectations. Measures are being taken to remedy the situation.

The main constraint is the widespread prejudice against vocationally-oriented education and the impression that vocationally-oriented education at secondary level is for the less able pupils.

Fighting against this prejudice and impression has been the main aim of the Ministry of Education. Measures are being taken to inform the public, the parents and the pupils of the importance and value of vocationally-oriented education and the opportunities offered to those following this type of education. Measures are continuously being implemented to ensure better conditions of learning, higher standards of achievement and better opportunities for advancement for pupils following technically-oriented courses. Some of these measures are:

(1) Continuous evaluation and revision of the curriculum. Syllabi have recently been designed on the basis of behavioural objectives. As already mentioned all interested parties, employers, trade unions, teacher unions participate in curriculum evaluation and revision.

(2) Provision for special conditions for access to higher technical education for those completing the vocationally-oriented courses.

(3) Special provisions for access to posts in the Civil Service.

(4) Continuous updating of the equipment of technical schools.

(5) In-service training of teaching staff and attachments to local industries for up-dating in technological advancements.

(6) Pupils attending vocational courses spend three days a week during their third year, training in industry under real work situations thus gaining work experience.

CYPRUS

**Constraints on Demand**

Vocational education is still often a second class option for 'academic failures' (Canada, for example) and its low status has been perpetuated by any or all of the following perceptions on the part of students and parents in many countries:

(1) that education is a vehicle for social mobility (Bermuda, Kiribati): 'students value education for reasons of social mobility rather than national development' (St Kitts and Nevis)

(2) that there is a stigma attached to working with one's hands or with the soil, that 'skilled persons are downgraded' (Bangladesh)

(3) that vocational education itself has a lower social premium even where a general degree offers little economic return (India), and that this lower premium is reflected in and compounded by relatively poor facilities, teachers and equipment

(4) that further education opportunities for vocational graduates are restricted (The Gambia, Sri Lanka, Canada, Zimbabwe, Mauritius), and that tertiary institutions may not accept vocational credentials (Zimbabwe, Canada)

(5) that employers often do not give credit for practical subject achievement in selection to a job (Lesotho, Sri Lanka) and

(6) that manual jobs not only have lower status but lower pay and poorer conditions of service (Mauritius).

Realistically or unrealistically, St Kitts and Nevis points out, parents perceive that academic education is in fact a vocational education providing access to jobs with pay and prestige. The Zambian country paper comments that 'practical activities run contrary to what many parents still believe is the proper task of schools: to prepare children for employment in towns, not to 'survive' in rural areas'.

The process of changing attitudes is being approached in several ways:

(1) by giving vocational programmes a 'facelift' (see Box 41, Cyprus); Australia's Participation and Equity Programme (PEP) has a similar intent

(2) by providing incentives to students in the way of free tuition and trainee allowances (Sierra Leone);

(3) by improving the public image of craft/technical training: Bermuda uses public television to promote crafts, has participated in the International Skills Olympics to increase the status of skilled workers, and cooperates with the Chamber of Commerce in providing careers information through workshops, exhibitions and school visits;

(4) by introducing vocational education earlier in the school curriculum so that it is seen to be a normal and acceptable part of the education process (Canada)

(5) by improving opportunities for further training at tertiary level for vocational graduates (Solomon Islands, Malaysia, Cyprus)

(6) by trying in a variety of ways to facilitate the transition from school to employment for vocational graduates, by bridging courses, modification of recruitment rules, facilitating self-employment, and by involving employers and trade union representatives in the design and implementation of vocational programmes (India, Brunei Darussalam, Cyprus; see Transition from School to Work, page 44).

In many countries, it is clear now that as opportunities in the job market decline, and competition for more attractive 'academic' places in higher institutions becomes more fierce, better qualified candidates are putting themselves foward for vocational training places (see for example Box 2, Papua New Guinea).

## CURRICULUM

Many issues related to curriculum have been discussed elsewhere in this paper and this section will try only to highlight certain other issues and useful initiatives.

Curriculum development initiatives centre largely, as we have seen, on the desire to lead schools away from a narrow grammar school curriculum to a broader diversified curriculum incorporating some practical elements, and in some cases productive work experience, and to link vocational programmes more closely to the skilled manpower requirements which can be identified and to post-secondary training opportunities.

The emphasis is on relevance, perhaps achieved by constant review (Malaysia) to ensure that the various aspects of the programme are linked as securely as possible to manpower needs (Barbados) and/or post-school training opportunities (Lesotho).

### Subjects/Content

Though many countries intend that vocational skills programmes should be broadened, vocational curricula generally remain surprisingly traditional, given that many programmes aim to enable students to be self-reliant and to appreciate and cope with technological change. Traditional craft skills in woodwork, metalwork, electrical installation, technical drawing, agriculture, business studies and home economics dominate the practical programmes in many schools. However, some regional emphases are apparent: Caribbean countries direct training towards the service industries (tourism/hospitality and banking); some African countries to rural self-employment; the Pacific/Indian Ocean islands to maritime occupations and crafts. The industrialised countries of the Commonwealth - Australia, Canada, New Zealand and Britain - are moving consistently away from a technical/craft subject approach

BOX 42

At present, all technical/vocational curricula are being re-formatted on a competency based modular design. The sequence in essence is as follows:

(1) the occupation is analysed.

(2) the functions of the occupation are arranged in modules of employable skills.

(3) acceptable standards of performance are attached to each module and each unit of the module.

The modules are then placed in a bank from which they may be drawn to be used unchanged in the compilation of the curricula of related occupations or amended accordingly. This has resulted in certification being given in two parts simultaneously:

(1) in actual performance of the job functions; and

(2) in written examinations in the related theoretical areas, e.g. communication; applied calculations and science and drawing.

This competency-based modular model is suitable for training both in the school or institution and on-the-job. At the institution level, teachers examine the practical work and this activity is closely monitored by specialist supervisors who standardise the performance criteria. At the industry level, examination of practical work takes the form of a trade test under industrial conditions. Each of these specialist supervisors serves on a curriculum advisory committee for the occupational field, and committee members are drawn from the government sector, the employers sector and the trade union sector.

TRINIDAD AND TOBAGO

BOX 43

One issue that needs to be addressed is the extent to which curriculum control should be decentralised. An essential feature of a relevant curriculum is its flexible adjustment to the local social, economic and cultural environment, to local needs and locally available resources. How can this flexibility be achieved without jeopardising the essential equity of provision and the equality of opportunity? Much more work is necessary to enable teachers jointly with others in the local community to take a much greater responsibility for the future lives of the children.

ZAMBIA

(industrial arts), towards vocationally-biased core subjects (language, maths, communication, design and technology), though elements of traditional programmes remain.

Several countries gave some detail about how they are trying to vocationalise the content and orientation of the general school curriculum.

Sri Lanka is restructuring its school system so that vocational subjects will be part of the curriculum for years 9-11, while the new activity-oriented Life Skills programme will be taught in years 7 and 8, and will replace former traditional technical subjects at this level. The Life Skills programme is designed to provide pupils with relevant and realistic experiences which would develop in them knowledge, attitudes and skills required to cope with daily needs in life. The curriculum has been field tested for four years, and national implementation is planned to be phased in over a five year period beginning in 1988.

In Papua New Guinea (see Box 17), the Department of Education is moving away from a subject-dominated vocational curriculum to a project-dominated one. Following evaluation of the SSCEP pilot project, government has established the Curriculum Extension Office to develop Integrated Teaching Projects (ITPs) similar to SSCEP Core Projects, for introduction at junior secondary schools. It will also prepare guidelines on community involvement programmes in which students can initiate and supervise practical projects in a less controlled environment. It is acknowledged that technical skills alone are not enough for school leavers: to take employment initiatives school leavers also require planning, management and relevant academic skills.

In Britain, two new certificates have been introduced to enhance the relevance of secondary-level education:

(1) The General Certificate of Secondary Education (GCSE) now replaces the GCE O level, and the CSE. The curricular changes associated with the qualification are intended to encourage an education at the secondary level which is broad, balanced, and adapted to pupils' differing abilities and needs, and which is more relevant to a new set of demands in adult and working life.

(2) The Certificate of Pre-Vocational Education (CPVE) course, introduced in 1985-86, is intended to fill the gap between school and work for those who have no occupation in mind and for whom advanced-level secondary education is not appropriate. It combines general and vocational education with work experience.

The Technical and Vocational Education Initiative (TVEI) is exploring through pilot projects in local authorities across Britain ways of organising and managing the education of 14-18 year olds in all ability ranges, so that they are better prepared for adult and working life. The projects aim to provide greater technical and vocational emphasis within a framework of general education.

BOX 44

A work experience programme was introduced (in New Secondary Schools) as an integral part of the Grade 10 and 11 programme, in order to bridge the gap between the world of school and the world of work. During the first and second terms of Grade 11, students are assigned to work-stations in public or private sector organisations for a period of not less than three weeks. As a result of this exposure and experience, a link is established between the environment of school and the world of work.

The Work Experience Programme helps to provide the student with increased opportunities to enter an occupation related to his/her vocational areas of study since it allows direct contact with business, industry, and agencies in the private and public sectors. Aspects of the Grade 10 and 11 programme prepare students for self-employment.

JAMAICA

BOX 45

From an educational point of view the greatest merit of the practical subjects is that they contribute to making the curriculum more relevant to the Zambian situation in general and to the future life situation of many pupils in particular. They also introduce an element of practical application where pupils are actively busy doing things with their hands. They offer an opportunity for applying principles of science, maths, and for learning about technologies.

Even though school maintenance should be classified as a genuine production activity, official emphasis has always been on agricultural and horticultural activities. Most schools tend to produce maize, vegetables, or keep small livestock. In this, secondary schools produce more than primary schools, and boarding schools more than day schools. The concentration on agriculture also means that there is a considerable variation between rural and urban areas. Output and profits also vary widely. For 1984 the total production income for primary schools was estimated at K1 080 000 (£80 000). This amounted to K0.74 per pupil or one per cent of the total primary school budget.

There are indications that output is on the increase, and that more and more schools are starting projects with capital assistance from parents or other community services. Income is used for a wide variety of purposes: for example, capital projects and maintenance; buying equipment; providing transport; sports, recreation, school outings; or for re-investment and production.

Monetary output, however, is easier to measure than educational outcome. This has been a weak spot and there is no hard evidence to conclude that production work reinforces particular skills pursued by the schools. Given the many problems that still need to be resolved, Zambia cannot claim that such activities invariably have a positive effect on pupils. There is also a great lack of information about the eventual impact on the lives of the youth.

ZAMBIA

A number of Canadian provinces are introducing the concept of 'generic programming', that is reorganising specific technical subjects on the basis of major vocational theme areas, and incorporating in the process a broader view of the workplace and the kind of skills which are required in it. Quebec, for example, has consolidated twelve different secretarial/office practice programmes within one thematic course entitled 'office employee'.

**Organising Curriculum Change**

Country papers provided only glimpses of the curriculum development process in Commonwealth countries: teacher involvement in the Solomon Islands and Zambia, The Gambia and Brunei Darussalam; resource-based INSET in Zambia (page 35); re-formatting on a modular basis in Trinidad and Tobago and Canada (Box 42); concern with national standards in the Solomon Islands and Britain and on local curriculum choice in Grenada and New Zealand.

The Zambian country paper discussed the problems of centralised and decentralised curriculum planning and implementation (see Box 43), an issue which also exercises planners in Britain and New Zealand. (It is interesting to compare the responses of governments of Britain and New Zealand to the decentralisation/centralisation issue. Britain, in the interests of ensuring a quality national system of education and training appropriate to an increasingly technological age, is prepared to limit the freedom of individual local education authorities, although at the same time giving more influence to parents and employers in education decision making ('educational insights and aspirations can no longer be regarded as a monopoly of the providers'). The system is a decentralised one but the Department of Education and Science has taken an increasingly active role in determining and effecting policy and curriculum. In New Zealand, the concern is to decentralise more fully: 'to devolve responsibility for education and training as far as is possible, to the community level. It is clear that the community has lost patience with ad hoc and diverse provisions for youth training and with what they see as the bureaucratic way in which they were administered'. Britain expects to avoid these charges by resorting to increased consultation with parents and employers. And New Zealand will closely monitor the offerings of its contracted providers (see Box 64).

**Aspects of Curriculum Diversification**

Three important aspects of curriculum reform and diversification have been given particular attention in the country papers: productive work projects, examinations, standards and certification, and co-operation with other authorities.

(1) **Productive Work Projects**

We noted earlier that work experience or productive work projects have been introduced in many Commonwealth schools. Workplace attachments are not common, although New Zealand (Box 48) and Jamaica (Box 44) have, among others, some experience of such schemes.

BOX 46

Education with production has been defined as a process which seeks to integrate theory and practice in the acquisition of knowledge, skills and experience. Nine ex-refugee schools, through ZIMFEP, have attempted, with some measure of success given their staffing and other problems to:

- introduce their pupils to scientific modes of production and technology;
- equip the pupils with appropriate technical skills to enable them to use such modern technology as prevalent in industry and agriculture-oriented productive activities;
- sharpen the pupils' senses to technical interests, aptitudes and aspirations coupled with the necessary career guidance;
- ensure that the pupils are sufficiently exposed to scientific and technological trends as well as grounded in political, social and economic problems related to socialistic oriented forms of production to ensure that such scientific education is adapted with ease to rural areas.

The practical subjects offered at ex-refugee schools include Building, Home Economics, Agriculture, Woodwork, Metalwork and Technical Drawing. The academic subjects are the same as in the other schools. The results of an evaluation of the project are awaited.

ZIMBABWE

BOX 47

The educational planners had a fresh look into the concept of Work Experience and its operation in different stages. It was felt that merely a large number of Work Experience activities undertaken by the school is not important; what is vital is the extent to which the skills of the pupils are developed in any particular area especially at the high school or lower secondary stage. As a large number of pupils drop-out of educational system after grade X, policy has laid an emphasis on intensive skill formation through pre-vocational courses so as to effect smoother transition between the school and the world of work. The policy has also highlighted the significance of pre-vocational experience for the exploration of a child's own aptitude and potentialities so as to pave the way for vocational education at the higher secondary level. Giving a pre-vocational bias to the Work Experience programme at the high school stage is expected to make a major breakthrough in reducing the dichtomy between work and education and could be reviewed as 'ground preparation for vocational courses' for those who continue at the +2 or higher secondary stage.

In cognizance with the recommendation of the policy in the area Work Experience the NCERT has developed guidelines, exemplar syllabi and instructional materials for pre-vocational courses. These courses, which comprise mainly activities or 'doing units', are expected to be administered in the form of actual work with minimum theoretical instruction.

INDIA

Some systems try to replicate some aspects of the workplace environment, or more simply to 'orient pupils to manual work' by involving all students, or just vocationally-oriented students, in actual production in a school- or community-based project.

Such production projects may have one or more of the following aims:

-- to relate theoretical and practical learning across the curriculum, or in respect of particular subjects

-- to make money for the school fund, or to recoup part of the cost of instruction, or to produce food for the school boarding establishment or school meals

-- to promote appropriate attitudes, values and skills relating to development and collective self-reliance; to enhance the students' appreciation of productive work, including its organisation and management

-- to expose students to aspects of the world of work, and thereby assist in their transition from school to work.

Country papers were largely silent on the organisational details of work experience projects, and their integration with other Ministry activities, their management and financial arrangements, or their cost-effectiveness. Zambia commented on several of these issues, including how successful such projects are in meeting their objectives (see Box 45), and a number of fruitful initiatives which vary widely in organisation and orientation were reported:

(a) **Rural/Agricultural Production Projects**

St Kitts and Nevis. In 1986, the Ministry of Education acquired a school farm to enhance through practical experience the agricultural programmes of Primary, All Age, and Secondary Schools as well as post-school programmes. The School Farm Project aims to widen the scope of practical training, provide food for the School Meal Programme, and support certification requirements for school-based assessment in Agricultural Science. The results have been very positive.

Zambia. Productive work is considered an integral part of the curriculum 'in the interests of the child's own proper upbringing'. Production activities 'have educational value. Through production, students can apply knowledge, appreciate the importance of working with their brains as well as their hands, develop the spirit of self-reliance, and learn how to contribute to the nation's productive activities.' Every school is expected to engage in productive activities to 'result in finished and marketable products', usually though not always agricultural produce.

BOX 48

The Student Work Exploration Programme which enables young people to experience the world of work while still at school was made possible by the passing of the Accident Compensation Act which removed from employers the financial risk associated with injury to young people in the work place. The programmes involve pupils experiencing the world of work in temporary and part-time placements, under the auspices of national and district advisory committees. Each school's programme is planned locally in consultation with employer and employee organisations, and parental approval for student participation is obligatory. Neither school nor student receive payment as a result of activity, which is additional to a student's normal school programme, and for a limited time only. Employers often provide written assessments at the conclusion of the placement.

NEW ZEALAND

BOX 49

The present curricula offerings in vocationally-oriented education, like those in other areas in the education system, are geared mainly towards satisfying the requirement of external examinations bodies. This can limit the system's effectiveness to meet the manpower requirements of the productive sectors of the economy. Serious consideration is currently being given to the phasing out of external certification and the establishment of locally-based standards of achievement relative to the local environment.

BARBADOS

Zimbabwe. The integration of 'Education with Production' is reflected in Zimbabwe's ZIMFEP projects at nine schools on an experimental, pilot project basis (see Box 46).

(b) **Projects Producing Goods or Supplying Services**

India. 'Work experience which is viewed as purposive and meaningful manual work, organised as an integral part of the learning process and resulting in either goods or services useful to the society is considered as an essential component at all stages of education. This is proposed to be compulsory for all students in the country's over half a million primary schools, about 200,000 upper primary schools, and nearly 50,000 secondary schools' (see Box 47).

Malaysia. Secondary Vocational Schools have been encouraged to carry out 'work oriented' programmes as part of the practical work. Things that can be utilised by the institution or by the students themselves are 'manufactured' and students carry out actual repairs on vehicles, radios, television sets, air conditioners, refrigerators, etc.

Jamaica. The Learning for Earning Activity Programme (LEAP) is a school-based production programme through which needy secondary students produce, sell and earn.

(c) **Work Experience - Real or Simulated**

Jamaica. The Work Experience Programme has been noted (Box 44), whereby students in grades 10 and 11 are 'interned' with industry or commerce to gain on-the-job experience in their elected vocational areas.

Bahamas. A Co-operative Work Programme exists on a small scale at some secondary schools, and it is planned to extend this kind of work-study programme (see below, Box 69).

New Zealand. The Student Work Exploration programme allows students to taste a variety of work experiences while they are still in school (see Box 48).

Canada. Many educational jurisdictions in Canada offer various forms of work experience options as part of the secondary school system. Some students participate almost full-time in a work experience programme which is supervised by a teacher.

(2) **Examinations, Standards and Certification**

While some Commonwealth countries like Botswana, Sierra Leone, Ghana and Barbados (see Box 49) still rely on external examination boards like City and Guilds and Pitmans for vocational certification, purposive localisation programmes are anticipated in these countries and have been undertaken elsewhere. Jamaica uses a

mixture of local (Jamaica School Certificate), regional (Caribbean Examinations Council, CXC) and external (City and Guilds) examinations. Tonga is in the process of localising: the South Pacific Board for Educational Assessment is working with the Ministry of Education to design examinations to replace the New Zealand Certificate and University Entrance Examinations. Fiji localised its examinations ten years ago, as did many other developing countries of the Commonwealth.

Country papers circled around several assessment issues and perhaps raised more questions than they answered.

(a) How widespread is the practice of local competency-based individual assessment? Trinidad and Tobago certainly promote the use of this kind of examination (see page 29). In Zimbabwe, it is anticipated that the proposed programme of 'applied education' will be based on attainment tests, pupils' cumulative progress, and the headmaster's recommendation. Malaysia proposes to modify its public examination system by incorporating open certification and assessment by subject. At school certificate level in Malawi, teachers allocate 20 per cent of the marks in certain subjects, which gives them some freedom in assessing their own students' work and initiative.

(b) How acceptable are vocational qualifications to post-school training institutions and employers? Grenada remarks on the failure of institutions of higher education/further training to give credit for applicants' achievement in practical subjects. The same applies in Zimbabwe and Bahamas. Academic credentials are preferred. Where local vocational qualifications have not achieved currency with employers and further education institutions, students are not motivated to study vocational subjects as there is no comparative advantage, and in some cases a clear disadvantage, in doing so. Malaysia, however, is making special arrangements to ensure the upward mobility of good students with vocational credentials to higher and further education and training.

(c) Do schools teach to recognised vocational awards? Most country papers do not specify whether full vocational certification is available in school programmes, and whether recognised validating bodies in the vocational field prescribe curricula and standards for some school-based pre-vocational programmes. However, in Malaysia the National Industrial Training and Trades Certification Board sets standards of assessment for some school programmes. In Britain, the National Council for Vocational Qualifications was established in 1986, following a review of vocational qualifications, to develop a clearer, comprehensive framework of vocational qualifications based on an assessment of the competences required for different types of work, and to try to cut through the existing jungle of existing qualifications, which confuse both employers and the individual.

BOX 50

Australian authorities recognise the reciprocal responsibilities of schools and employers and the mutual benefits to be gained from closer links between secondary schools and employers. Such links can expand the curriculum resources for a school while enabling employers to obtain an understanding of and an affiliation with their local school. The mechanisms to foster these links vary from state to state. For example, in South Australia:

- industry representatives are members of Department of Education curriculum committees or are consulted as the curriculum is developed

- employers' representatives are included on the Senior Secondary Assessment Board

- there are links in place between schools and employers.

In Australian Capital Territory schools participate in careers awareness courses offered by Technical and Further Education (TAFE) Colleges.

AUSTRALIA

BOX 51

One of the factors limiting the rapid expansion of technical education has been the scarcity of training technical teachers. In the early stages of the development of technical education, considerable reliance was placed on imported teachers. In the last two decades full use has been made of training programmes from agencies such as United States Agency for International Development, Canadian International Development Agency, the Organisation of American States, the United Nations Educational, Scientific and Cultural Organisation, etc. These programmes provided the trained cadres which have had a multiplier effect. The present emphasis is on the training of Technical (Industrial Arts) teachers locally. Instead of having teachers trained abroad, a programme has been arranged though collaboration with Erdiston College, the Barbados Community College and the Samuel Jackson Prescod Polytechnic.

There is still a need however for advanced training for teachers of technical subjects. These teachers are necessary as heads of departments and as future teacher trainers. The Faculty of Education of the Cave Hill Campus of the University of the West Indies, the Ministry of Education and Tertiary institutions, Samuel Jackman Prescod Polytechnic and Barbados Community College have been discussing possible linkage between the programmes offered by the U.W.I. Faculty of Education and other tertiary institutions for the training of Industrial Arts teachers.

BARBADOS

(d) How are appropriate standards set and examinations devised? The involvement of employers and trade unions along with technical educators in designing curricula appropriate to defined national standards of achievement and skill, often through curriculum and standards advisory committees, is now common practice throughout the Commonwealth at least at the tertiary level. This also promotes the acceptance of local vocational certificates by employers in the private as well as in the public and parastatal sectors, where acceptance is easier to enforce by regulation.

(3) **Co-operation with Other Authorities**

Co-operation between Ministries of Education, employers, employees and trade unions has been discussed. It is probably true to say that inputs from industry are encouraged significantly more often in post-school rather than school programmes. In Seychelles (the Polytechnic) and Mauritius (the Lyceé) representatives of other sectors are involved in project identification, curriculum development, examination setting, and giving advice on the world of work. How far this is true for similar activities at schools level it is difficult to say from the information available in the country papers, though see Box 50 (Australia).

**STAFFING**

The shortage of adequately and appropriately trained teachers impedes rapid and effective vocationalisation and diversification. Curriculum initiatives can only succeed where the training, prospects, pay and status of teachers' can be enhanced (Papua New Guinea). Some countries continue to rely on overseas recruitment.

**Recruitment and Retention of Vocational Teachers**

Several factors contribute to the shortfall of good teachers and these constitute a common theme among many Commonwealth countries: poor pay and conditions of service, poor promotion prospects, relatively better conditions for skilled artisans in industry, low status of vocational teachers, rigid procedures and conditions of service based on formal academic qualifications, especially where recruitment is done by the Public Service Commission, and a shortage of trainable vocational graduates, where local facilities exist for teacher training.

There are evidently no easy solutions. A number of smaller countries - Grenada, Barbados, Tonga, The Gambia, Maldives, Sierra Leone, Botswana - have been relying on qualified expatriate teachers, or on sending technical college graduates abroad for training. Botswana emphasises that this is a short-term solution necessitated by its substantial expansion programme until an aggressive technical teacher training and localisation plan can take effect.

BOX 52

Based on the assumptions that the transition rate from primary to Junior Secondary School (JSS) is 40% and that there is an attrition rate of teachers of 10% each year, it was computed that between 1981-82 and 1988-89 school years the number of teachers required for secondary schools would rise from 45,656 to 97,196. This is undoubtedly the trend, which means that the existing institutional capacity for producing teachers has to be doubled, with the critical area being the supply of technical teachers for the pre-vocational subjects. Financial constraints have restricted both the enrolment numbers and the capacity to train teachers. For example, only about 30% of the 160,000 to 186,000 qualified applicants secured placement in the polytechnics over the last three years.

It has been estimated that Nigeria needs 109,000 technical teachers at secondary level for 1986-87 session. Of this number only about 8% i.e. 8,000 technical teachers are capable of teaching the pre-vocational courses.

NIGERIA

BOX 53

A vocational teacher requires practical experience in real work situations during the period of his training and reinforcement of this experience periodically throughout his career. In order to meet the requirement of teachers, very often part-time teachers are recruited. For selection of part-time teachers, the minimum requisite qualification is relaxed giving due weightage to practical experience. As a result, retired professionals or practising professionals working in government/private establishments or institutions are recruited as part-time teachers. The involvement of professional experts in the instructional programme brings them into closer collaboration with educational activities and gives them opportunities to appreciate the problems involved in institutional training. Many of the states have issued circulars to various departments to release their professionals who are interested to work on part-time basis for the cause of vocational education.

INDIA

BOX 54

There are serious and persistent shortages of secondary teachers in Craft, Design and Technology (CDT), Physics and Mathematics. Special measures other than pay have been taken to attract applicants, including funding for initiatives in higher education institutions. These will include the provision of specially designed courses to tap new sources of supply. A national unit has been formed to publicise opportunities in teaching which will initially concentrate on shortage subjects. A tax free bursary scheme for trainee teachers in Maths, Physics and CDT which supplements local education authority awards has been introduced. A review of the contribution new technologies can make is under way and the BBC have been commissioned to provide a set of ten training programmes for Maths and Physics teachers. Discussions have started about a similar set for CDT. 'Taster' courses to allow mature entrants and others to sample training to encourage entry or return to teaching will be available soon. The government is arranging discussions with industry about collaboration on remedies for teacher shortages and how to stimulate industrial interest in schools. These initiatives are intended to attract more people into the teaching professions from a wide variety of sources.



BRITAIN

Many countries of the Commonwealth (Bangladesh, Jamaica, Zambia, Malawi, Malaysia, Trinidad and Tobago, Seychelles, and Barbados, see Box 51), already have or are planning their own technical teacher training facilities, although these are often inadequate to meet the needs of rapidly expanding vocational programmes. Nigeria, for example, estimates it requires over 100 000 vocationally oriented secondary school teachers, yet only 8000 are available (see Box 52). Expansion of technical teacher training facilities does not feature significantly in country paper discussion. In many countries the numbers required are large and tight capital allocations for education would not allow for such expansion.

Recruitment of skilled artisans from industry, who are then upgraded through pre-service or in-service courses, is common in many Commonwealth countries but Grenada points out that teacher recruits from industry do not have sufficiently broadly-based skills and are too bound to the processes of their former employment. Nevertheless, Botswana, Ghana and India recruit teachers and lecturers from industry on a part-time basis (see Box 53). Malta uses teachers on secondment from industry. Such schemes at least ensure that the teacher has both relevant skills and employment experience. The problem of how vocational subject teachers can acquire, maintain and up-date vocational skills and relevant work experience, particularly in terms of keeping up with changing technologies and processes, is a recurring theme of the country papers.

In summary, the country papers suggest a number of ways in which obstacles to recruitment of appropriately qualified and motivated teachers and their retention, might be overcome:

- -- increasing the number of school leavers in vocational areas to increase the pool of potential vocational teachers - a long-term solution (Barbados)
- -- increasing the attractiveness of the profession by improving facilities and equipment (Australia), salaries and conditions of service (Solomon Islands, Jamaica, Botswana, Sierra Leone, Tanzania, Cyprus) and selling the idea aggressively (Britain, see Box 54)
- -- improving promotion prospects in an expanding system (Botswana)
- -- broadening the base of recruitment by using part-time or seconded staff from industry (India, Malta, Botswana, Bangladesh, Tanzania, Cyprus, Seychelles)
- -- reducing the number of teachers needed by ensuring each teacher trains in three subject areas (Malawi)
- -- bonding trained teachers on graduation (Tanzania)
- -- improving staff development programmes (Malawi)
- -- expanding pre-service technical teacher training colleges (Barbados).

**Inservice Upgrading for Vocational Teachers**

The need to enhance and upgrade technical teachers' skills is met in a number of ways. Teaching skills can, of course, be improved through a broad spectrum of inservice programmes: short- and long-term courses, annual seminars and workshops, conferences and study tours (Tanzania,

BOX 55

Schools and teachers in particular, feel neglected when professional support service seems hard to come by. And the schools, very often are out there doing their own stuff. This area of professional support has recently been improved, with the increased number of Senior Curriculum Development Officers for Secondary Curriculum Development. These officers have also been assigned the school inspection responsibilities besides their primary duty to write up curriculum materials. Because they normally visit the schools frequently, they are also sources of professional guidance to teachers.

SOLOMON ISLANDS

BOX 56

For several years the Government has been trying to find ways to encourage grassroot activities and support when with selected inputs. Currently one new SIDA-sponsored programme is underway which aims to support resource activities among teachers, with a particular emphasis on practical activities such as 'practical subjects', home economics, agriculture and production work. It is referred to as Self-help Action Plan for Education (SHAPE).

An important component in this programme is the completion of a national organisation infrastructure with committees and teacher-co-ordinators at school, zone, district, regional and college levels to initiate and implement resource activities. The infrastructure is used to channel inputs throughout the country. These consist of training workshops and seminars, the distribution of guidelines for resource activities and production work, for curriculum development and the production of teaching aids. There is also a component of material support for resource centres, production work, and for local co-ordination e.g. transport.

The benefits of bringing such activities aimed at improving the quality of education together under one umbrella is that there can be much effective co-ordination between them. It stimulates teachers and educational support personnel to look across subject areas and consider more directly the interrelationships between home economics, woodwork, metalwork and other parts of the curriculum, and to make production work a more meaningful core part of school activities. The SHAPE framework will also serve as a useful basket through which different donors can effectively contribute to the development of general education.

ZAMBIA

BOX 57

The twinning arrangement between St Kitts Technical College and Confederation College of Arts, Science and Technology in Thunder Bay, Ontario, Canada, has been ventured to (1) broaden frontiers, (2) share experiences and expertise and (3) provide greater opportunity to disseminate and update useful information on technical, scientific and other related materials. The main areas of co-operation are (1) electrics, (2) hotel trades, (3) secretarial studies, (4) Resource Centre, and (5) equipment and materials to underpin all programmes.

Under this arrangement, staff of St Kitts Technical College are to be trained in four areas at Confederation College, and counterpart staff from Confederation College are to be based in St Kitts for the duration of the staff training programme. To this end, the staff members have gone to Canada, and completed their training. One is currently undergoing a two-year training. Generous contributions of equipment in almost all areas have been received. The funding and executing agencies are ACCC/CIDA.



ST KITTS AND NEVIS

Jamaica). The Solomon Islands have tried to overcome the problems of the underpreparation and isolation of practical subject teachers by in-servicing them through the curriculum development network (see Box 55). Zambia's innovative SHAPE programme (Self-Help Action Plan for Education) aims to provide teachers with a more comprehensive national in-service infrastructure (see Box 56). St Kitts and Nevis and Canada have mounted a 'twinning' arrangement which concentrates on improving teaching skills (see Box 57). We have already reported the important role which NCERT plays in India (page 20). Mauritius, Malaysia and Fiji rely to some extent at least on overseas institutions for staff development. Fiji, for example, uses the Colombo Plan Staff College in Manila for Technician Education, as well as the University of the South Pacific. A similar pattern is also seen in the Caribbean.

What is most difficult is how to enhance the vocational skills of technical teachers, and there is little evidence that this obstacle has been surmounted with any degree of success. Where teachers are recruited from industry, it may be assumed that their initial skills formation is complete and that they have appropriate work experience (though these cannot always be taken for granted). But how can Ministries improve the practical skills of institutionally-trained practical teachers, upgrade and update the practical skills of experienced teachers, and enable them to acquire industrial experience? A few suggestions were made: Cyprus upgrades technical teachers through the Paedagogical Institute and by part-time attachments in industry; Trinidad and Tobago is considering assigning staff to industry during school vacation; and Malaysia already releases teachers and instructors of upper secondary and tertiary levels on attachment to industry for three months with full pay. Ghana arranges short-term industrial attachments for a few vocational teachers, locally or overseas. Grenada, however, points out that it is difficult to give on-the-job experience to trained teachers because local companies fear the loss of their own competitive advantage in skills, and are also suspicious of visitors who may be critical of their processes and procedures.

In Britain, the existing infrastructure for in-service upgrading needed revitalisation. The British government, in promoting improved standards in schools, recognised the need to improve teachers' practical teaching skills, their depth of subject knowledge, and their assessment skills, and in particular to increase the skills of further education teachers in providing professional, commercial and industrial updating, and to make them generally more familiar with new developments in the world of work. In order too use available INSET resources better, government felt that a more systematic approach to INSET planning and implementation was required. It therefore introduced a new system of funding local authority expenditure on in-service teacher training, consisting of two elements: (1) for areas of national priority - including Maths, pre-vocational education in schools, Craft, Design and Technology, computing and microelectronics, and the scheme to promote the development of technical and vocational education (TVEI); and (2) for local education authority training initiatives.

BOX 58

Under the sponsorship of Swedish International Development Authority (SIDA), a cost analysis on technical education was done in Kenya in 1985. The study revealed that the Youth Polytechnics are the cheapest institutions, followed by academic secondary schools offering Industrial Education subjects (only 11% of the teaching timetable). Industrial Education is generally expensive. The reason for this is that such classes often require 20 students or less. Therefore in terms of teaching expenses and supplies, Industrial Education is at least twice as expensive as other school subjects. Generally, (1) workshop buildings are expensive, (2) tools, equipment, materials, consumables, maintenance and repair are costly; and once again, (3) industrial subjects require smaller classes, thereby adding to the unit cost of the subjects.

KENYA

BOX 59

Cognisant of the importance of education as an instrument of change, successive Nigerian Governments have allocated a large proportion of annual budgets to education. An average expenditure of about 9-10% of the total capital and recurrent expenditure of the country goes to education. Since the mid-1970's all levels of education up to the first degree have been tuition free with parents and other sponsors bearing the cost of textbooks and boarding at secondary and tertiary levels.

When, initially, funds were made available for the implementation of the Policy, the first priority was the establishment of universal free primary education. With the introduction of the Junior Secondary School (JSS) segment, emphasis shifted to capital provisions for pre-vocational and technical education. A comparison of sectoral capital expenditures on education at the federal level, for the 1986 fiscal year, reveals that sizeable proportion of overall expenditure was channelled into pre-vocational education; and, in order to make technical education even more accessible, the Federal Government shored up States' subsidies for polytechnics by providing more of its own institutions, by assisting with the acquisition of equipment for the vocational Junior Secondary School segment, and by grants for primary school rehabilitation and promotion of science education. The quantum of expenditure on the formal system is defrayed by governments, but alternative sources of finance for the formal system derive from international co-operation and local participation; whilst industry participates in the out-of-school system. For example, the operation of the Industrial Training (ITF) is partly financed by a training levy of 2% of the annual payroll of all employers who receive a refund of up to 60% of the training tax total. For the nonformal and formal sections, additional revenues accrue from gifts, endowments funds, community self-help and levies by parent-teacher associations. Communities have made land available and sponsored the construction of workshops, laboratories and teachers' quarters for their community schools. Voluntary organisations have been helpful in organising career talks, and in making donations to primary schools in areas of need in order to complement the efforts of governments. Religious organisations have sent teachers to teach religious knowledge and moral instruction at the primary and JSS levels.

NIGERIA

**COST-EFFECTIVE MANAGEMENT OF RESOURCES** (see also Constraints, page 24)

Vocational education is expensive. Botswana points out that 'with such a wide diversity of vocational training opportunities ranging from private, profit-oriented commercial facilities to missionary, low cost philanthropic ventures' with varying cost bases, it is very difficult to make any accurate cost comparison with academic programmes. Certainly little attempt is made in country papers to draw the comparison (but see Box 58, Kenya). There seems to be general agreement that diversified education is costly, perhaps two or even three times more expensive than general education.

Nevertheless, many countries would agree with India that 'the cost of not implementing vocationalisation would be considerably higher than its immediate implementation'.

**Resources** (see Box 59, Nigeria)

Although government resources are everywhere stretched almost to the limit, fees are not commonly charged at government education and training establishments through the primary and secondary cycles; charges are sometimes made for workshop consumables and boarding costs. In some Commonwealth countries at the tertiary level fees are chargeable to students or employers sponsoring trainees. Many governments rely increasingly on post-school programmes initiated and maintained by the private commercial and industrial sectors, churches and missionary societies, voluntary groups and community groups, and this helps to underwrite the national training budget. Privately-owned, fee-paying schools and colleges are common in less developed countries, especially for general education and for commercial and secretarial skills.

The resources which governments bring to vocational training may be supplemented in five other ways:

(1) **Self-help.** Self-help was mentioned in several country papers, particularly by Zambia (see Box 60). Ghana reports instances of community self-help in vocational education are very rare. Kenya's Harambee - community self-help - is well known: for example, all additional 12,447 primary classrooms required for the new 8:4:4 programme have been built through community efforts as were the Harambee Colleges of Technology and Youth Polytechnics.

(2) **Productive work.** Work experience projects have been discussed earlier in this paper (page 29). Projects at the primary and secondary levels are expected to contribute significantly to school training budgets, or to make expensive training projects more cost-efficient. Most countries which have introduced such projects have altered school financial regulations to enable schools to keep and invest or spend the income from them.

(3) **Levies.** Levies on employers are applied and used in a variety of ways.

BOX 60

As a matter of policy it is the local community and the parents who are gradually becoming more involved in practical activities in schools. The rationale for this is partly the stimulation of interaction between schools and the local environment. The move is also spurred by the diminishing financial resources on the side of Government and the increasing need to mobilise community for parents' involvement in the schools. Parent-Teachers' Associations are now being transformed into co-operative societies. However, this involvement does not extend to school administration, curriculum development, or teaching.

Our experience is that extensive educational reform is expensive and takes a long time to materialise. Also that in order to succeed it is essential to have the active interest and co-operation among teachers, local educational officers and the community. It is in this area that some significant changes have taken place in recent years. The educational reform exercise spurred the slow development of new forms of in-service education for teachers through the establishment of teacher centres at school level and resource centres in colleges and at district or sub-district levels. Actively assisted by churches and committed inspectors or educational officers, teachers in many places have shown great self-reliance by establishing such centres largely without government financial support. Gradually senior teachers across the country now receive additional in-service training to become 'resource teachers' for particular subject areas. Teacher Training Colleges are taking a greater responsibility for in-service education and school guidance through their resource centres. Some even produce teaching aids. Practical subjects and production units greatly benefit from these developments as teachers are encouraged to devise local solutions to problems that arise and organise resource activities for the improvement of the quality of education. This gives great hope that by a concerted effort of the Ministries of Education and the teachers, vocational orientation in general education serving Zambia's needs can reach early maturity.

ZAMBIA

Trinidad and Tobago. An unemployment levy is paid by firms or individuals with relatively high incomes and is used in part to fund on-the-job programmes for trainees, particularly the salaries of field counsellors and stipends for the trainees.

Jamaica receives contributions from employers in support of the Human Employment and Resource Training (HEART) Trust, a statutory body of the Ministry of Youth and Community Development which co-ordinates out-of-school training.

Cyprus. The Industrial Training Authority finances sponsored courses for industry by a one per cent levy on the national payroll.

Seychelles similarly applies a training levy on the wage bill of all employers - government, parastatal and private. One per cent of payroll is paid to the Employment Training Fund. This contribution cannot meet all training costs 'but it is an expression of national effort and determination'.

Barbados imposes a small training levy on industry.

(4) **Staffing.** A number of countries, particularly in Africa and the Caribbean, supplement local vocational teaching staff with overseas volunteers, often recent polytechnic graduates themselves. Additional specialist part-time staff are recruited to good effect, particularly for short-term courses, from the public and private industrial and commercial sectors (India, Botswana).

(5) **International Co-operation.** Loans, grants, awards and assistance in kind, negotiated by Commonwealth countries with various multilateral and bilateral agencies, have played an important part in expanding and improving secondary and post-school vocational programmes and technical teacher training.

The country papers suggest that the World Bank, UNESCO, ILO, the European Development Fund and the Commonwealth Secretariat have played significant roles among the multilateral agencies assisting vocational programme development. The Canadian Government - through CIDA and ACCC - has taken a leading role among bilateral agencies, followed closely by Britain, the United States, Sweden and West Germany, among others.

From the information supplied by Commonwealth governments, it is not possible to assess what priority governments have placed on vocational programmes when they have sought external assistance for education sector programmes.

BOX 61

The major lessons learned [from international co-operation in formal technical education, project-related training and scholarships for study in Canada] relate to appropriateness and cost-effectiveness. Formal technical-vocational education has been costly and not as successful as expected in preparing students to directly enter the job market. Work study programmes, the private and non-governmental organisation sectors may be more cost-effective. Project related training is most appropriate when provided on-site, in the Third World context. Finally, scholarship training in Canada, though often successful and appreciated, has been criticised for inappropriateness and for fuelling unemployment, underemployment and the brain drain. As a result, CIDA scholarships are focusing on priority training needs, on training not available locally, on individually tailored programmes of training, and on individuals who have a job to which they are contracted to return. More generally, CIDA's Human Resource Development efforts are as a matter of priority being directed to the development of Third World countries' own HRD capacities.

CANADA

Nor can we say what proportion of such assistance comes in the form of 'soft' loans, tied aid or scholarships, or outright grants. Much external financing involves substantial counterpart funding which may be underrated. Finally, the country papers say little about the ebb and flow of various kinds of assistance, as they are determined by aid agency policy. It would have been useful and interesting, for example, to understand better the changing role of the World Bank in funding capital projects in various regions, or to examine where and under what circumstances the focus of assistance has shifted from capital to recurrent funding, if at all. Canada has commented on funding issues from its own point of view (see Box 61).

Significant intra-regional co-operation has been facilitated by organisations like the OAS (Organisation of American States), the IOC (Indian Ocean Commission), SADCC (Southern African Development Coordination Conference) and the OECS (Organisation of Eastern Caribbean States) for example, as well as by regional universities - the University of the West Indies and the University of the South Pacific - particularly in training personnel. Important possibilities for mutual co-operation were highlighted by St Kitts and Nevis, Malta and Barbados who have themselves been able to offer training places or training awards.

Governments have used external assistance in a variety of ways:

(a) Staff Development

(i) advanced training fellowships and scholarships at tertiary institutions overseas for technical teachers and teacher trainers (Uganda, Tonga, Cyprus, Malaysia, Tanzania, Guyana, Grenada, Trinidad and Tobago, inter alia)

(ii) industrial attachments abroad for technical trainers (Ghana)

(iii) exchange of information among teachers and administrators through
- study tours (Ghana, Uganda)
- conferences, workshops, symposia, seminars (Trinidad and Tobago, Tanzania, Grenada)
- newsletters, information networks like UNESCO's Asian Programme of Educational Innovation for Development (APEID), the Network of Educational Innovation for Development in Africa (NEIDA), and the Islamic Centre for Technical/ Vocational Training and Research in Bangladesh, funded by OPEC

(iv) advisory, consultancy and professional expert services (Uganda, Malaysia, Tanzania, Malta, Barbados)

(v) linking arrangements with overseas institutions (St Kitts with Confederation College in Canada; Uganda with Jordanhill College of Education in Britain; Sierra Leone with Humber College in Canada).

(b) Facilities and Equipment

(i) capital development projects: secondary vocational expansion (Zambia, Barbados, Nigeria); technical teacher training (Nigeria, Bangalore, Zambia); tertiary institutions (Ghana, Malaysia, Cyprus, Barbados); craft centres (St Kitts, Bangalore)
(ii) equipment/material/supplies (Uganda, Grenada, Guyana, Tanzania)
(iii) maintenance and rehabilitation of schools, centres and institutions (Tanzania)
(iv) teaching staff for schools and institutions (Uganda, Barbados) and for post-school centres (Zambia)
(v) books and periodicals (Uganda, Guyana, Ghana).

Several proposals were made for enhancing the viability of assistance programmes.

Kenya emphasised the need to reduce ties on assistance and to enable governments to use funds according to nationally determined priorities: 'Some foreign donors dictate terms which made it difficult to fully benefit from the aid .... Many donors want scholarships to be taken in their countries even if similar programmes were available locally. Some even dictate the kind of courses which must be taken in their institutions.'

Mauritius and Maldives stressed that external assistance should not 'disturb the normal administrative set-up and the socio-cultural web'. There is a marked diversity in aid agency policy and programme offerings. Aid programmes must be appropriate to the recipient's socio-cultural and economic environment, level of development and general education attainment, and to the absorptive capacity of that country's educational system.

Zambia highlighted the importance of direct linkages - through study tours, exchange visits by senior officials, inspectors, teachers and lecturers - within the region. This kind of co-operation has been emphasised for the Self-Help Action Plan for Education (SHAPE) programme for teachers and the 'hope is that through direct observation and sharing of ideas we become much more aware of the possibilities of accelerating our education development'.

BOX 62

In the face of limited resources, economies of scale have to be employed: technical schools had to be merged; more than one class at Junior Secondary School level had to be brought together for general subjects to compensate for the specialised teaching in small groups of pre-vocational subjects; adult and continuing education classes utilise existing facilities; sandwich and day release courses prove effective and are economical; institution based in-service courses are mounted for teachers during the vacations; and university programmes of study are being rationalised. Distance education and correspondence courses are other programmes of economy that will reduce expenditures on student financing, plant and facilities. In this regard, the systematic de-boarding of schools at the secondary level reduces capital outlay and recurrent expenses.

Technical institutions are being encouraged to establish production units to serve as income-generating outlets; in some cases school farms are self-supporting; and improved management co-ordinating techniques have eliminated waste and prevented duplication.

NIGERIA

**Management**

Funds for massive capital programmes which marked the post-independence period in some developing countries have virtually dried up. The careful manipulation of scarce capital resources and hard-pressed recurrent budgets preoccupies many Ministries of Education. The high cost of vocational education makes it vital to rationalise resources, to minimise duplication of effort, and achieve cost-effectiveness without detracting substantially from the provision of a high-quality delivery system (Barbados).

Country papers contained a number of thoughtful proposals for using resources more cost-effectively (see Box 62, Nigeria for example).

(1) **Planning and Management Infrastructure**

The theme of improving planning and management capacities of Ministries of Education permeated the country papers, which suggested that the interests of cost-effectiveness would be served by

(a) a more rational co-ordination of national training activities (Bangladesh)
(b) enhanced planning, managerial and administrative capacity within Ministries of Education (India, Malaysia)
(c) an effective technical information service for vocational training institutions (Bangladesh)
(d) adherence by institutions to carefully defined strategies for achieving specific programme goals, to reduce duplication and wastage (Barbados)
(e) improved management techniques for effective control and monitoring of funds (Nigeria)
(f) a better flow of information and data (Nigeria).

(2) **Financial and Budgetary Management/Using Resources Better**

(a) <u>Extending the resource base</u>

We have already considered how various countries supplement their often meagre resources, and will recapitulate briefly here.

Although no attempt was made to analyse the real cost of <u>productive work</u> in schools, country papers suggested that income from productive work could contribute significantly to school budgets through the sale of goods, produce or services (Botswana, Grenada, India, Ghana, Kenya, Zambia, Tanzania).

<u>Overseas funding</u> plays an important role in capital expansion and programme innovation generally, and Grenada mentioned the importance of planning new projects carefully in order to attract external funds.

The apprenticeship system helps to divide training costs between the public and private sectors (Botswana). India, Botswana, Britain and Malaysia actively encourage the participation of the private sector in funding, equipping and administering vocational training. Others, like Papua New Guinea, consciously leave certain programmes - secretarial and clerical, for example - to the private sector. Swaziland and Sierra Leone are relying to an increasing extent on non-formal, out-of-school provision.

Levies on employers - in the private, public and parastatal sectors - are applied in a number of countries (Trinidad and Tobago, Jamaica, Cyprus, Seychelles and Barbados).

Self-help construction of staff houses, outbuildings, classrooms and furniture, and school-based maintenance and repair of school facilities, furniture and equipment make substantial savings in initial capital costs, replacement costs and recurrent expenditure (Kenya, Tanzania, Zambia and Guyana).

(b) Making efficient/cost-saving use of scarce resources

Governments are determined to reduce costs by reducing waste of resources. Mauritius and Tanzania prefer that practical lessons should not just be experimental exercises in cutting and joining pieces of wood or metal, but should result in a useful, marketable product. Grenada prefers group practical projects over individual ones to conserve expensive consumables. Other cost-saving devices include:

- centralised bulk ordering of equipment and supplies (Grenada, Botswana)
- preparing budgets and workplans carefully to reduce wastage through oversupply (Grenada)
- sharing vehicles to reduce transport costs (Grenada)
- using cheap local supplies (of coal) in preference to expensive imports (electricity) (Botswana).

Australia and Barbados both highlight possibilities for clustering schools and sharing plant, equipment and staff among institutions (although Australia is concerned about additional transport costs in doing so). India encourages co-operation between schools and farms, hospitals and other institutions nearby to reduce infrastructural requirements. Sierra Leone has co-operated with nearby Guinea and Liberia to establish a regional training school which has helped to pool scarce resources more cost effectively.

BOX 63

In the interest of cost-effective management, some devices are employed by the education authorities to monitor expenditures of institutions and actual costs involved in procuring inputs and services. The major ones are as follows:

(i) Regular monthly expenditures returns of institutions are called for by the Ghana Education Service to make possible the study of the expenditure pattern of the institutions.

(ii) Internal as well as external audit teams visit the institutions periodically to inspect their accounts and by so doing monitor their expenditures.

(iii) Development officers posted to the Regional Education Offices monitor development projects of the institutions as well as expenditures relating to such projects.

(iv) Inspectorate and Planning officers who periodically visit the institutions to inspect their operations check the expenditures made by the institutions as well as the actual costs of projects, training materials procured and services.

Goods ordered are subjected to a careful process of stock control.

GHANA

BOX 64

Regional Employment and Access Councils are to be encouraged to promote competition between providers for training places; a price for each course will be a matter of negotiation between the REAC and the providers. Trainers whose programmes do not achieve the objectives agreed will no longer be contracted as providers. Trainers whose programmes fail to retain trainees during a course will suffer monetary penalty and again will be unlikely to be contracted in the future. Similarly, there are moves to make funding for all other forms of vocational education and training less permanent so that providers are persuaded to be constantly aware of changing needs.

NEW ZEALAND

(c) Improving budgetary control/monitoring

In all Commonwealth countries, civil servants are fully accountable for the disbursement and use of government funds and supplies (see Box 63, Ghana), and many Ministries of Finance monitor the disbursement of funds by computer. In Mauritius, a performance monitoring unit has been established at the Ministry of Education to review budget requirements for the supply of equipment and materials. Performance auditing - assessing performance on cost-effectiveness principles against programme objectives - has not yet become very widespread in Commonwealth public audit commissions. New Zealand has adopted a novel approach to cost-effectiveness: it is contracting training programmes out to providers, either from within or beyond the education sector, and stressing the accountability of the provider for the quality of the training programme (see Box 64).

(3) Facilities, Materials and Equipment

(a) Facilities

(i) Optimum use of available facilities. Cost effective use of facilities involves optimising the rational use of those which are available. Many countries have extended the school day and even the school year, and buildings are used in afternoons and evenings and during term breaks for adult and school leaver classes, and for the institutional component of apprenticeship training (Botswana, Fiji, Ghana, Tanzania, etc.). As we have seen above, facilities are sometimes shared with other programmes and authorities. The Architects and Buildings Branch of the Department of Education and Science in Britain offers advice and guidance to educational building professionals particularly in the areas of premises costs, flexibility and adaptability (see Box 65).

Botswana makes an important point about optimising the length of training courses: course design should be appropriate to occupational requirements for skills and knowledge. The length of courses will vary as requirements vary, and shortening the course length will make effective cost-savings if learning outcomes are safeguarded. Botswana also emphasises that combining institutional apprenticeship training with on-site experience reduces the institutional training period and achieves a greater throughput at no extra cost.

Malaysia is not alone in suggesting that specialised trade or vocational schools separate from academic secondary schools reduce the cost and optimise efficient use of resources and facilities. India however counters with the view that 'the expenditure for locating vocational programmes in schools is only a fraction of that for

BOX 65

Expenditure related to premises accounts for about 25 per cent of the total recurrent cost of operating educational institutions which run vocational courses. There is an increasing emphasis on providing the best value for money. Managers and users of buildings are therefore increasingly concerned with the accurate assessment and efficient utilisation of accommodation and related facilities. In order to minimise capital and recurrent costs, while ensuring that students are able to use a wide and up to date range of equipment, the Architects and Buildings Branch advocates a dual strategy of flexibility and adaptability, supported by an emphasis on careful management.

Flexibility ensures that a suitably fitted out space can be used for a variety of purposes at any one time. This trend towards multi-use accommodation will tend to attract a variety of users, including students on different courses, adult students, teaching staff from other institutions, or community groups. Adaptability is particularly appropriate for the design of accommodation for vocationally oriented subjects where requirements are constantly changing. Spaces should be designed and fitted out so that the servicing and building layout allows for appropriate changes in the medium and longer term. Recent work on adaptability in several courses has demonstrated important educational and cost effective advantages, including the simulation of commercial techniques, the possibility for students to use a wide range of equipment, greater flexibility in the use of teaching accommodation, a reduction in the number of spaces required, and reduced installation and maintenance costs.

BRITAIN

establishing separate vocational institutes'. The difference lies in balancing initial capital investment costs against savings derived from efficient use of human and material resources over the long term.

In Canada, the trend towards generic secondary vocational training and comprehensive secondary schools which offer the full range of academic and technical subjects has been facilitated by falling school populations. This has created the opportunity for many jurisdictions to examine their facility needs, and to incorporate curriculum change without substantial capital expenditure, so that the use of existing facilities is optimised. 'There is no desire to totally eliminate the former school structures. There is a desire to rationalise the use of educational facilities in such a way that an environment which is conducive to the integration of vocational training as a normal education experience is created.'

(ii) Building more cheaply. Solomon Islands, Tanzania and Botswana emphasise the use of simple, cheap, standard, locally-designed facilities in building new institutions. Self-help construction of workshops, with community support, is also a cost-saver provided that the design and supervision are controlled (Zambia).

(b) Materials

Mauritius has computerised its stores section so materials can be ordered, retrieved and distributed on schedule. Fiji, like others, gives preference to the use of local materials for practical activities, and as we have seen above, several countries are experimenting with ways to conserve and monitor the use of consumables. Sri Lanka reports that revision and review of curriculum material in Life Skills has resulted in a substantial saving in material costs of more than 60 per cent.

(c) Equipment

Bangladesh has established a Central Stores/Service Workshop with a mobile service team to repair broken equipment and train teaching staff in its use. Mauritius has completed a survey of machinery and equipment used so that if necessary items can be deployed to institutions where they will be better used. Nigeria is surveying workshop equipment supplied for the vocational Junior Secondary School programme by Eastern European countries in terms of durability, appropriateness and cost-effectiveness. The intention is to invite local entrepreneurs to fashion tools with a high proportion of local components more suited to local conditions and medium-scale technology. Nigeria has also recently established, with Hungarian assistance, a Science Equipment Manufacturing Centre.

BOX 66

The multitude of subjects in vocational education numbering over 50 prior to 1977 have been reduced to 15 within the past decade. Studies are under way to further reduce these 15 subjects to 4 areas as technical options to be made available in schools: (a) Agriculture and allied subjects; (b) Basic Technology; (c) Commerce and allied subjects; and (d) Home Economics and allied subjects. This is not only feasible but is also a manageable option which helps to reduce/minimise staffing problems (recruitment and training), equipment and material costs, provision of specialised work space.

SRI LANKA

(4) Human Resources

(a) Improving teachers' efficiency

Vocational teachers need better in-servicing as well as more feedback from industry. The management of teaching staff is critical because it is the most expensive cost element: Trinidad and Tobago suggests that a competency-based modular approach to curriculum with monitoring supervision best ensures teacher effectiveness. Sri Lanka proposes to experiment with a mobile teacher service which would enable one vocational teacher to teach at more than one school, in order to generate opportunities for multigrade teaching in schools with low enrolment, and to reduce the underutilisation of available teachers. Solomon Islands points out that salaries costs can be reduced by seeing that vocational teachers are adequately but not over-qualified.

(b) Reducing costs

Sri Lanka has consolidated its vocational offerings to reduce costs (Box 66). A number of countries share teachers among institutions, as we have seen, and use volunteer specialist teachers from industry where a full-time, long-term appointment would not be warranted (India, Botswana, for example). Australia and Botswana have found that clustering schools and institutions enables them to share staff. Malawi hopes that all teachers will be qualified to teach three subjects and so make more efficient teaching loads possible. Cyprus combines vocational classes during the teaching of theoretical subjects, increasing class size and making more efficient use of facilities and staff. New Zealand's link programme has been able to draw on underutilised staff within the polytechnic system for the advantage of secondary students.

TRANSITION FROM SCHOOL TO WORK

Some of the most interesting initiatives in the field of vocationally-oriented education address the difficult issue of actually putting young people to work, as they leave the structured environment of schooling for the diverse work community, where many have little chance of getting a job. Many school leavers have little idea about how to select a career, or how to set about the task of looking for employment at a time when there are few jobs for them.

Schemes which try to facilitate the transition from school to work range from school-based vocational guidance counselling through work attachments to post-school work experience and skills training for those who would not normally qualify for further education.

BOX 67

There has been a substantially increased effort in recent years in the areas of education and vocational information, designed to assist in transition and in strengthening the education/employment interface. Whether the effectiveness of services has improved at the same time is open to question. Research evidence continues to point to students' primary reliance on informal social and family networks, rather than on special services for 'vocational guidance'. At school level, students are reportedly more likely to seek advice from classroom teachers with whom they have established a positive relationship, than from specially-designated careers teachers or from counsellors. Yet only a minority of teachers have had any direct experience of fields of work outside education and unpaid home duties. It is doubtful whether the majority of teachers are knowledgeable about the full range of educational opportunities available to school leavers, particularly in the Technical and Further Education sector.

It is recognised by educationalists that the need for expert, individual appraisal of the vocational interests, aptitudes and motivations of secondary students cannot be met by informal methods. For the broader aspects of vocational development, however, a basic choice is possible between integrated (or curriculum-based) approaches involving all appropriate subjects and teachers, and the provision of specialised teachers and programmes in career education. In either case it is recognised that the process of vocational development needs to be stimulated at an early age in secondary school.

AUSTRALIA

BOX 68

A job placement service will be available at the schools for those students not wanting to progress to a technical college for higher level skills training. The service will also assist employers who will need information on those students for full-time jobs, on their education and training, the skills they have, and any work experiences. The job placement staff will work closely with programme advisory committees in order to obtain a continuous flow of information on business and industry manpower requirements. In addition, they will assist employers in estimating their manpower needs in order for plans to be made for them to obtain their requirements by employing students from the vocational schools.

Guidance counselling services will also be provided at the schools and will play an important role in ensuring that student decisions, based on two years of education and training, are in fact related to the labour market needs of the economy and are not based on ill-formed and hasty short-term judgements. The full range of counselling services will include career, educational and personal guidance counselling.

BRUNEI DARUSSALAM

## School-based Programmes

### (1) Guidance Counselling

There is evidence in country papers that the importance of guidance counselling programmes is being recognised in a number of Commonwealth countries (see for example, Box 67, Australia).

In the Canadian province of Alberta, a career and life management course will be implemented as part of the graduation requirement for senior secondary students, focusing on both career and personal guidance as preparation for the future.

St Kitts and Nevis has identified the need for a strong career guidance programme as part of the formal system through the appointment of Career Guidance Officers, an annual Career Guidance Week, and a publication by the Ministry of Education, 'Know Your Future, A Careers Guide to High School Subjects'.

Jamaica is studying proposals for training guidance counsellors by involving inputs from an advisory panel composed of representatives of the HEART Trust, business leaders, private sector employers, training specialists and Ministry of Education officials. It has established a strong guidance counselling unit within the Ministry.

Cyprus allocates time at the lower secondary level for presentation of the various careers and arranges visits for pupils to technical/ vocational schools and factories, as well as talks by professionals. In addition, vocational guidance counselling services are being improved by training counsellors who give particular emphasis to vocational courses, with the intention of increasing the numbers of vocational graduates.

Brunei Darussalam plans to undertake both guidance counselling and job placement (see Box 68), and Papua New Guinea has changed its guidance policies to include greater emphasis on counselling students on all opportunities available, not just on those in further training.

### (2) Productive Work Projects

As we have seen (page 29) productive work activities in school aim to orient students toward work and enhance the kind of knowledge and skills suitable for employment. India's Work Experience Programme for example, quite specifically promotes 'a smoother transition between school and the world of work'. Papua New Guinea's proposed Integrated Teaching Projects, if used as planned, should initiate students into the technicalities of self-employment creation in the community.

### (3) Exposure to the World of Work

We have seen how the Work Experience Programme in Jamaica, now in its tenth year, places Grade 10 and 11 students for periods with industrial or commercial enterprises, to gain on-the-job experience in their elected vocational areas (page 44). Similar work-study programmes operate in Guyana, Canada and New Zealand (Box 48).

BOX 69

Another venture has been the Co-operative Work Programme, which has been implemented within the last eighteen months at The College of the Bahamas. This programme integrates theory with practice and students are able to pursue their studies, obtaining credit for on-the-job experience in business and industry. Weekly seminars are held to assess students' performance. An advisory committee meets on a regular basis to monitor this programme.

A similar programme has existed on a small scale at the secondary level for some years. Plans are to expand the nucleus of such work experience using the experience gained by The College of the Bahamas in order to achieve a tighter organisation and closer relationship between study and work to increase the effectiveness of work-study programmes.

BAHAMAS

BOX 70

In Queensland there are two categories of joint school - Technical and Further Education (TAFE) programmes: link courses and integrated courses. Link courses introduce students to TAFE and to a range of occupations and may increase students' perceptions of the relevance of school studies to employment and TAFE courses. They are designed to expand the curriculum base of the participating institutions, to provide more course flexibility and greater opportunity for accelerated learning in subjects such as music and art, and to maximise the use of scarce resources such as workshop facilities.

In South Australia co-operative programmes are used to augment, increase and extend existing school curricula, introduce students to subjects and courses available in TAFE and to as wide a range as possible of occupational choices and possibilities, develop awareness of the relevance of study for the world of work, assist students in making informed career choices, and encourage student participation in tertiary study.

AUSTRALIA

The Bahamas Junior Achievement Programme exposes students to the management of business in a practical way, at the senior secondary level. Businessmen who are willing to simulate and provide first-hand experience in the mechanics of establishing and maintaining a business venture work with the students. The programmes promote skills and attitudes for occupations directly or indirectly related to the hospitality and financial services industries, and especially in the numerous services required to support tourism and banking. Co-operative work programmes exist at both secondary and tertiary levels (see Box 69).

In Bermuda, secondary school students gain work experience in a day release programme. Schools' guidance counsellors arrange for students to attend a particular work site for one day per week. Students carry out assignments under the direct supervision of full-time employees, who provide schools with periodic reports on the work habits and achievement of the day release students. School reports may be used to form the basis of references when students later apply for jobs.

(4) Co-operative Link Programmes

Australia's co-operative programmes aim to strengthen links between secondary schools, Technical and Further Education (TAFE) Colleges and the world of work (see Box 70). Kiribati, Britain, Canada and New Zealand propose to develop and strengthen similar links.

(5) Transition Courses

Britain's Certificate of Pre-Vocational Education seeks to fill the gap between education and employment for those who have no specific occupation in mind by offering a combination of general and vocational education with work experience, and allowing students to sample a variety of occupational skills.

New Zealand offers similar transition courses developed in individual schools as early as 1975; 80 per cent of secondary schools now offer such courses. They are usually alternative programmes for those who return to school reluctantly, or who intend leaving school. Schools adapt their own resources and approaches by taking account of the needs of the students within their own locality. Course structures, which vary widely, usually include some elements of regular academic courses (communication English, numeracy), career education, 'life' skills, job seeking skills, and work exploration. New Zealand is experimenting with the concept of co-ordinated transition and career education, and student work exploration within and across the curriculum.

Post-school Programmes

(1) Work Experience/Training Programmes

The British Youth Training Scheme is aimed at 16 and 17 year old school leavers (see Box 71). The Australian Traineeship System is

similar to Britain's Youth Training Scheme and complements further education, higher education and apprenticeship systems as part of the government's strategy for young people. A target of 15 per cent of all traineeship places has been set for disadvantaged youth - long-term unemployed, Aboriginals, the disabled and those who have special needs. The Australian Traineeship System aims not only to train and certify school leavers, and thus help to reduce youth unemployment, but to improve the capacity of employers and training providers to provide training on and off the job which is relevant both to industry and to young people.

In Barbados, the Skills Action Programme is a scheme which seeks to provide young unemployed persons with about six months' on-the-job experience to make them more competitive in the labour market. Training is mainly in clerical, communication and supervisory skills. The National Training Board publishes lists of firms which participate in the scheme and the job titles for which they can offer training. Trainees on securing a position sign a contract of training, and are paid a bi-weekly stipend by the employer who is in turn reimbursed by the Board.

In Seychelles, the Work Experience Programme caters for young people who have dropped out of formal education. The Programme provides young people with 'work experience' in duties of an unskilled nature by sensitising them to the world of work prior to their becoming full-fledged workers (see Box 72).

Provincial governments in Canada have developed a number of direct job creation initiatives and other incentive schemes to provide employment opportunities for youth. There are two kinds of programmes: (a) direct employment by government agencies, and (b) wage subsidy programmes or subsidies to non-governmental organisations or private employers to hire young people, particularly disadvantaged groups and visible minorities such as native peoples and inner city residents. Many direct employment programmes include a training component.

(2) **Skills Training Programmes**

Post-school non-formal craft training centres are sponsored in a number of Commonwealth countries. In Grenada, the Non-formal Youth Skills Training Project has been organised by the Ministry of Education to train youth between 16 and 25 in a variety of craft skills so they can find employment in industry and commerce. The Industrial Training Programme in Bahamas is administered by an Executive Director responsible to the Ministry of Education, and provides opportunities for school leavers to train in skills in the construction and service trades. Instructional staff comprise craftsmen direct from industry, retired technical teachers and volunteers from abroad. No fees are charged and trainees are paid a weekly stipend. A similar Skills Training Programme has been mounted in Barbados for school leavers.

BOX 71

The Youth Training Scheme, which was extended to a two year programme from April 1986, gives 16 and 17 year old schoool leavers an opportunity of two years of training and work experience. This is normally with an employer, though some schemes are also managed by the public sector or voluntary organisations. Under the new scheme a minimum of 20 weeks of training and education is provided off-the-job, frequently - though not necessarily - in a further education college. It is intended that every young person should have the opportunity of obtaining a vocational qualification or credit towards one. The introduction of YTS will mean that perhaps between 80 and 90 per cent of all 16 and 17 year olds will be continuing in education and training in some form, mostly in a vocational programme which is broadly based - not restricted to narrow skills training but leading to competencies for successfully undertaking a range of jobs.

BRITAIN

BOX 72

The Work Experience Programme does not give on-the-job training as such; rather, it provides young people exposure to the world of work, its demands, discipline, relationship to other workers, rules and regulations, etc. The period of employment under the Programme varies depending on the education level of the persons joining it. For instance, a P9 leaver will stay on the programme for 4 years whereas a person having completed one year at the Polytechic is eligible for permanent worker status after one year on the Work Experience Programme. Similarly, wages paid to persons under this Programme reflect their level of education and as such, bear no relationship to the type of work being undertaken. Wages are liable to tax and social security deductions and persons on the programme are entitled to all normal employment benefits. They do not, however, fill jobs which are normally occupied by fully-fledged workers and they do not undertake work for which payment is determined by productivity. Employers are encouraged to offer permanent employment to those who complete their work experience with them or who attain the age of 21 during the course of their employment on the Programme.

SEYCHELLES

In Cyprus, the Ministry of Education designs and mounts ad hoc training courses for the recruits to the Labour Corps (Emergency Labour Corps, Pioneer Corps, Id-Dejma) created specially to ease unemployment and provide trade training to youth who left school without a skill.

We received little information about National Youth Services which promised much during the 1960s and early 1970s. The Malawi Young Pioneers is an exception. It offers courses at the training bases in a wide range of subjects including agriculture, animal husbandry, leadership techniques and elementary construction skills so that trainees can employ themselves usefully and productively on the land. The programme also assists trainees to make the transition to self-employment both in agriculture and in the formal wage sector of the economy. Similarly, the Guyana National Service is a major organisation providing practical technical training for university students and for school leavers who are underqualified and unemployed.

Maldives has given a detailed account of its Rural Youth Vocational Training Programme which seeks to provide rural youth in the atolls with skills training in sea-based crafts and basic trades for self-employment (see Box 73).

BOX 73

In order to supplement the programme of the Malé Vocational Training Centre and primary and secondary education in the atolls, in 1982 the Ministry of Education established the Rural Youth Vocational Training Programme. The purpose of the programme is to provide rural youth in the atolls with skill training in sea-based crafts and basic trades for self-employment. The trades in which training is initially being provided were selected on the basis of their income-generating potential and the immediate manpower needs in the atolls and include handicrafts (fibre-crafts, jewellery and woodcarving), carpentry, boat-building and diesel engine maintenance.

The recent rapid development of tourism has accompanied an increase in the potential for self-employment in sea-based handicrafts. Boat-building is one of the main inputs for the fishing sector, and there is considerable scope for developing and expanding this very traditional skill. With the mechanisation of fishing boats there is an increased need for repair and maintenance of diesel engines in the atolls. On more populous islands there is an increasing demand for carpentry products, especially furniture.

To assist the Government of the Maldives in the establishment of the Rural Youth Vocational Training Programme in 1982 the ILO/UNDP, with financing from AGFUND, started the implementation of project Rural Youth Vocational Programme. By the completion of the first phase of the project in August 1985, it has established the physical facilities for seven workshops in five locations dispersed throughout the archipelago Kulhudhufushi (fibre-craft), Alifushi (boat building), Eydhafushi (diesel engine maintenance), Thulusdhoo (fibre-craft, jewellery and carpentry) and Hithadhoo (woodcarving). The project has trained 14 instructors and developed and supervised the initial implementation of the different courses and now the Rural Youth Vocational Training Programme has an annual enrolment of approximately 86.

Whilst it has been successful in the initial establishment of the Rural Youth Vocational Training Programme, considerable consolidation of project results are required before the programme is fully operational in providing training to meet the manpower needs of the atolls, and for self-employment. Due to initial constraints, the quality of the courses and instructors still needs upgrading. This is particularly true of handicrafts where the absence of a strong knowledge of locally available raw materials meant that extensive preliminary work had to be carried out before the initial courses were established.

Due to both time and resource constraints the initial project did not set up a full infrastructure for the provision of assistance to ex-trainees in the establishment of workshops, credit for the purchase of tools and equipment, and product development and marketing. In the light of the above, the Government is undertaking various measures to strengthen and expand the Rural Youth Vocational Training Programme, which will improve the quality of training and enable the programme to expand its output of trained workers.

MALDIVES

## CONCLUSION

It would be misleading to generalise too broadly on the basis of the mass of detail in the country reports. Several themes seem however to emerge quite clearly.

There has been a vital expansion of vocational programmes throughout the Commonwealth. With the recognition that primary and secondary (or basic) education is terminal for most children, has come a welcome chance to make schools curricula more relevant to the world of work. Higher capital and recurrent costs of provision have, however, impeded the achievement of programme objectives in many countries, even though cost-conscious governments are anxious to reduce the evident mismatch between the output of schools and the employment market. Teachers with appropriate skills are everywhere in short supply, as are the necessary planners and managers required for an educational evolution of this scope.

Governments have found it possible to circumvent some of the financial and manpower constraints by taking advantage of the resources of the parastatal and private sectors. The cost of training, as well as the administrative and managerial skills required to run such programmes, can be shared efficiently among a wider range of authorities inside and outside government. In some countries, this kind of co-operation has involved a decline in emphasis on institution-based training programmes in favour of industry-based training with an institutional component; the apprenticeship system in various forms is an increasingly viable alternative. Although their educational and income-earning potential has yet to be proved, production projects in support of vocational training are favoured by many governments.

It might have been expected that, given the financial and manpower constraints on expansion of vocational provision in schools, many ministries of education might have looked more closely at possibilities for integrating work-related skills in the general school curriculum. Moves in this direction and away from the traditional industrial arts programmes were negligible except in developed countries of the Commonwealth. Here, several factors -- the requirements of employers, the cost of properly equipped vocational facilities in educational institutions, and the rapidly changing technology of the workplace -- have encouraged education authorities to seek ways of preparing young people for the workplace within the general curriculum, while leaving particular skills preparation to tertiary technical institutions or employers themselves.

Meeting the technological challenge, at a time when tools, materials and equipment are changing rapidly, in line with the content of jobs and the composition of the workforce, is beyond the reach of most Third World governments, which remain surprisingly traditional in their emphasis on the fundamental industrial arts courses like metalwork, woodwork, plumbing, masonry and mechanics.

Girls are in many places still confined to the ghetto of 'appropriate' courses, and disproportionately unrepresented in skills programmes. But there is heartening evidence that advances are being made to revitalise curricula for girls, to integrate boys' and girls'skills programmes, and to acknowledge and challenge the habits and customs which inhibit participation of women and girls in a wider variety of vocational activities.

Finally, some of the most interesting initiatives in the field of vocational preparation are taking place at the interface between school and work, in various 'transition' programmes which facilitate the movement/leaver of the school to the workplace in ways which are both economically sound, and sensitive to the needs of the individual.

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